



The Story of

MEAT

ROBERT B. HINMAN AND ROBERT B. HARRIS

THE STORY OF MEAT

by

ROBERT B. HINMAN and ROBERT B. HARRIS

THE STORY OF MEAT is that rare thing, a book which although crowded with facts is easy to read. Not only is the book simply and entertainingly written, but its large type and its great number of attractive illustrations are designed to make reading a pleasure.

Full of Background Information

Intended primarily for young men who plan to make a career of the retail meat business, the book gives in brief form a background of history, economics, and nutrition so that the place of meat in the development of our civilization and the many problems connected with its production, processing, and distribution are brought out in proper perspective.

Meant for Dealers as Well as Students

From its first appearance, THE STORY OF MEAT has been acclaimed by educators as furnishing important information not otherwise available. But it is not only teachers of vocational education and their students who have found the book of great aid in their daily work. Retail dealers who got their start in the old days when apprenticeship and driving a delivery wagon took the place of well-designed high school courses have found the book a mine of valuable information. The book specializes in supplying significant facts about meat which are not likely to have come to the attention of even a star pupil in the school of experience.

Written by Experts

The authors of the book are not only experts in their own right, but they had the benefit of suggestions from many other persons, each of whom was in a position to contribute something of value.

THE STORY OF MEAT will tell you the highlights in the development of the meat industry from the days when the cave men ate their mastodon raw to the present time. A quick glance through the table of contents or a look at some of the pictures with which the book is profusely illustrated will give you an idea of the treat in store for you.



THE STORY OF MEAT

ROBERT B. HINMAN
and
ROBERT B. HARRIS



ILLINOIS HISTORICAL SOCIETY







Shipping Pickled Beef to the West Indies

The Story of Meat

by

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and

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With a Foreword by

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Published by

Swift & Company
Chicago

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FIRST PRINTING, 1939
SECOND PRINTING, 1942

PRINTED IN THE
UNITED STATES OF AMERICA

\$1.00 a copy

664.9
4595
1942
cop-3

ILL. HIST.

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Foreword

Starting the first school of its kind in the world is a task of no mean proportions. There are endless details of organization, of building construction, of equipment, and of teaching personnel that require painstaking consideration.

One of the most fundamental problems that had to be solved in connection with the establishment of the New York Food Trades Vocational High School was that of obtaining suitable textbooks for the use of those students who intend to become meat retailers. It did not take much search to disclose the fact that for many phases of the curriculum no suitable textbook existed. In no other field of high school education was the lack of a good textbook more apparent than in the fundamental operations, economics, and history of the meat industry.

Fortunately for us, the meat industry—now as in the past—contains more than its share of firms and individuals who are interested in the welfare of the entire industry. When our problem was presented to Swift & Company, we received the heartiest cooperation. Swift & Company made only three stipulations when we asked it to finance the writing and publishing of "The Story of Meat." These were that the book should be written by experts in the field of vocational education, that the story told should be an

FOREWORD

industry story rather than a company story, and that the authors would assume full responsibility for the presentation of an objective and accurate account. The company also agreed to accept the outline I offered, which contained the items I thought essential in studying the industry as a whole.

“The Story of Meat” is the result. I believe the collaboration of one of the foremost experts in animal husbandry in the country and an experienced vocational high school teacher has resulted in a book of great practical value to teachers and students.

In our own school we contemplate using the book as an aid in actual shop work, as well as in related academic courses.

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New York City.*

Acknowledgments

The authors are grateful for the helpful advice and cooperation of Mr. Jacob Simonson, in charge of the New York Food Trades Vocational High School, whose suggestions were always aimed at producing a book which would be of real service to students of vocational high schools as well as of other schools.

Particularly helpful as source material were "Man, Bread and Destiny" by C. C. and S. V. Furnas; "The American Livestock and Meat Industry" by R. A. Clemen; "Food Technology" by Prescott Foster; and also scores of booklets and pamphlets too numerous to list here, published by the United States Department of Agriculture, by the United States Department of Commerce, by the Institute of American Meat Packers, by the National Live Stock and Meat Board, and by individual meat packing companies.

Special thanks are due to Swift & Company for permission to reprint, as Chapter IV on "The Raising and Marketing of Livestock," material contained in the Swift book, "The Meat Packing Industry in America."

Much of the material in the chapter on "Poultry" was furnished by Dr. Alfred Van Wagenen of Cornell University.



*It's a big job to provide Americans with their most popular food—meat—
requiring hard work and teamwork by the livestock producer,
the meat packer, and the retail dealer.*

CHAPTER I

Meat Through the Ages

The Place of Meat in Man's History

WE all know the place occupied by meat in human civilization today. We know it is the largest single item in the food budget of the average American family. We know it is an excellent body-building and energy-making food. We know it is easily digestible. We know it is appetizing. We know it appeals to young and old. We know meat-eating races have been and are leaders in the progress made by mankind in its upward struggle through the ages.

We know all of these things so well, it is only natural that we take them for granted. But few of us realize how far-reaching is the role that meat has played in man's development from earliest times.

Our Early Ancestors Were Meat Eaters

If we were to trace back the development of man on this planet as far as mind can reach, scientists think we would find that our earliest prehistoric ancestors were almost entirely vegetarians—forest-dwellers who lived on nuts and fruit. But we would discover, too, that some of those earliest ancestors of ours were not

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content to live always in the forest. They were more daring than their brothers and cousins and began to inhabit the edge of the open country. It was these prehistoric pioneers, the scientists think, who—separated from the forest's plentiful nut and fruit supply—first began to eat meat. Because of the greater variety of foods they could eat, and the greater ingenuity they developed, it was they who survived in the struggle for existence. It was they who were able to bring up families and so become the forefathers of the men of today.

Man Becomes a Searcher for New Things

The addition of meat to a previous vegetarian diet was not only nutritionally correct, but it had other far-reaching consequences. Because he was now eating meat it was possible for this remote forbear of ours to exist through lean years when fruits and nuts were not abundant. Meat, furthermore, enabled him to roam over a wider expanse of territory. He could live anywhere he could find game, and thus he began to become a searcher for hunting grounds and new homes. A spirit of adventure—and the need to eat—kept him always on the move, discovering new areas on the earth's surface and consequently finding himself always in strange predicaments where only his wits could save his skin.

It does not require keen brains to keep alive on a plentiful supply of fruits and nuts, but the bold spirit who turned his back on the forest and went up and



Stag hunters of the Stone Age.

down the land wherever his fancy led him had to use his head to live. Those early wanderers, who had no maps to guide them and no authentic reports to tell them where food was plentiful and where it was not, must have been continually getting into difficulties. Those who survived to become the ancestors of to-day's men and women were the more intelligent, the more quick-witted, the more courageous.

Man Begins To Be an Inventor

In his search for meat our prehistoric forefather had to invent weapons. He had to discover fire to keep himself warm, to protect himself from wild animals, to make his food more palatable. He learned how to make weapons and implements from bone and sinew. He learned crude methods of freezing and curing meat so that it would keep over fairly long periods. Perhaps most important of all, he learned to do things in a group, rather than playing a lone hand

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in the struggle for existence. The reason, of course, was that many of the animals whose flesh he sought as food were too big and too powerful to be killed by one man acting alone. It took the combined efforts of many men to conquer the largest food animals of those prehistoric times, whether the task was to slay a huge mastodon or to drive a herd of buffalo-like animals over a cliff.

Food Animals Are Domesticated

Eventually, man made one of his greatest steps forward: the domestication of food animals. First came the dog which was friend as well as food supply. Then came the horse, at first herded for food only. Later came the pig and the cow, and finally the sheep.

Communities, Civilization, and Culture Arise

Out of all these changes came at last a community life. The roving hunters, or small bands of wandering game-seekers, began to stay at home to tend herds and cultivate crops; and thus inevitably drew together



The huge mastodon, ancestor of the elephant, was one of the first meat animals hunted by groups of prehistoric men.

MEAT THROUGH THE AGES

into groups. As man became a herder and an agriculturist, instead of merely a hunter, he acquired new skills. He learned to use the wool of sheep and to make leather and other useful articles. Thus, man—social creature that he is—began to form settlements, villages, clans, tribes. The tribal search for new pastures, and the wars that followed, brought about the intermingling of races. Out of these have come the peoples that inhabit the earth today. From the pooling of the experience, knowledge, and ideas of these many individuals—made possible now that man lived in groups—came the development of human civilization and culture.

The contribution of meat to civilization did not end here. The early herders worshipped food animals as gods and chose them as totems for their tribes. Even as late as Biblical times men were making burnt offerings of meat to their tribal deities as a gift of their most precious possessions. In many countries and civilizations a man's wealth was measured by the number of cattle he owned. The old Latin word for money—"pecunia," from which we get our word "pecuniary"—came from "pecus" meaning cattle.

Search for Meat Still Drives Man On

But even in more recent days we can still see the influence of meat on history. Columbus set forth on his famous voyage in 1492 because he was seeking a

THE STORY OF MEAT

shorter route to the East Indies. But the chief reason he wanted to find a shorter route to the East was to make it easier to obtain supplies of spices for Europe, where, in days long before refrigeration had been discovered, spices were in great demand to preserve meat and to make it palatable. Marco Polo's overland journey to the Far East had much the same incentive behind it.

In our own country's development, meat played an important part. But before we turn to the story of meat in America, let us review briefly what we have found out about meat through the ages. The early men who, before the dawn of history, survived to be our ancestors were those who became meat eaters. Their independence of the forest's vegetarian fare enabled them to wander far and wide over the face of the globe. Their search for an adequate supply of meat led them to cooperate with one another. It led them to domesticate animals. It led them to invent weapons and tools of various kinds. It taught them the use of important by-products, such as leather and wool. It encouraged them to develop community life and thus put civilization on a firm foundation. It has spurred them on to make hazardous journeys of discovery and to develop the wide areas of the earth's surface in order that distant cities may have food for their teeming population. Meat is woven into the very fabric of civilization as we know it.

MEAT THROUGH THE AGES

Study Questions

1. Why were those prehistoric men who ate meat best able to survive in the struggle for existence?
2. Can you name some tools not mentioned in this chapter that were probably developed early as a result of man's efforts to obtain an adequate meat supply?
3. What methods do you know of that primitive men used in capturing or killing wild animals?
4. Which were the first animals domesticated by man?
5. What were the advantages to early men in forming communities?
6. Are you familiar with any present-day religious

Animal hides almost exclusively are used by Eskimos for their clothing.



THE STORY OF MEAT

ceremonies in which meats or meat animals play a part?

7. What famous travelers undertook voyages of discovery partly because of man's need for meat or meat preservatives?



Animal sacrifice in early times.

CHAPTER II

The Meat Industry Before 1860

| From the Founding of the |
| Colonies to the Civil War |

THE adoption of meat as an essential part of the human diet, and the effort to obtain an adequate and dependable supply of meat, became, as we have seen, one of the starting points in the development of human civilization.

The more complicated society became and the more widespread its activities—in industry, science, and art—the more cities grew in number and size, and the more complex became the problem of satisfying man's meat requirements with efficiency and economy.

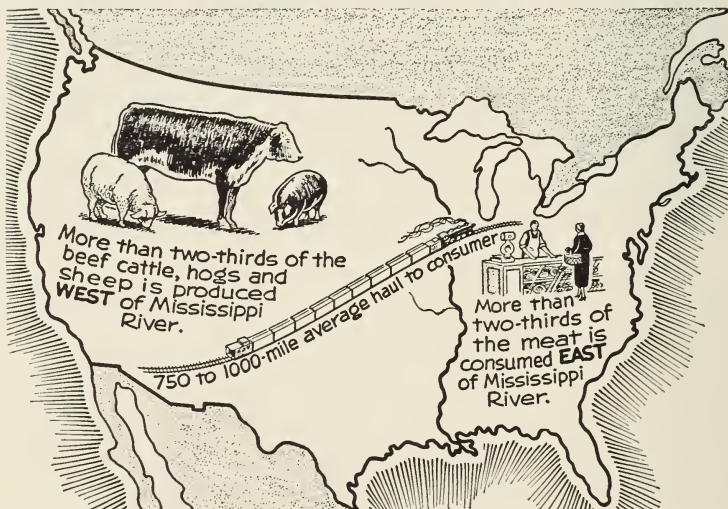
Difficulties in Obtaining Meat

This task has loomed especially large in a country like ours which has grown in a brief three hundred years from a handful of colonial settlers into a nation of one hundred thirty million people. It is a task which has demanded the utmost in energy and ability from the three groups—livestock producers, meat packers, and retailers—that have undertaken it.

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Above all, it has required organization. For here in the United States we have been faced with a special difficulty. As our country expanded, the major agricultural centers—the corn belts and the grazing lands—grew farther and farther away from the principal cities on the seacoast. This situation has reached the point where, at the present time, approximately two-thirds of our meat is produced west of the Mississippi River, whereas two-thirds of it is consumed east of the great river. Yet, through the efficient organization of the industry—in large measure led by the meat packers—this tremendous obstacle has been hurdled. Moreover, the industry has made it possible to obtain a regular supply of fresh meat of practically every kind in any city, town, or hamlet in the nation.

One of the big problems faced by the meat industry.



The Meat Supply

Based on Data from U. S. Census Bureau.

(Larger dots indicate locations of important livestock markets.)

Where It Comes From

Beef Cattle on Farms, Ranches

One dot = 5,000 Cattle



Where It Goes

Consumption of Beef

One dot = 2,500,000 Pounds



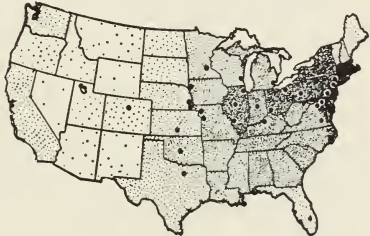
Hogs on Farms

One dot = 10,000 Hogs



Consumption of Pork

One dot = 1,500,000 Pounds



Lambs and Sheep on Farms
and Ranches

One dot = 10,000 Sheep and Lambs



Consumption of Lamb
and Mutton

One dot = 500,000 Pounds



THE STORY OF MEAT

How was this organization achieved? How did the vast and complex organization that handles this great daily undertaking develop? That is the story we have to tell here.

Wild Animals Furnish First Meat Supply

The early travelers and settlers in this country were compelled for a long period of time to subsist on the meat of wild animals—moose, elk, and buffalo—with an occasional catch of fish procured on deep-sea or inland fishing trips. As a matter of fact, echoes of these days still lingered in the stories told just two generations ago.

Livestock Imported by Colonists

The sturdy colonists, however, were not content to rely entirely for so important a food as meat on a source so uncertain as wild life. A possible scarcity would lead too easily to privation and perhaps death. They turned their attention to importing and carefully tending domesticated livestock.

Columbus may have brought cattle and hogs with him on his second journey, but our first authentic record is one of a shipment of hogs from Cuba about 1538. The first fairly large shipment of cattle is supposed to have reached Virginia about 1610, and the first recorded shipment of sheep reached there about one year earlier.

Into New England, which was destined to become the center of colonial development, livestock was brought by the first ships to reach its shores. The Pil-



The American bison was once a primary source of meat for Western pioneers.

grims, who arrived there in 1620, had with them only a few live animals, mostly cattle and hogs. History books usually give this fact but brief mention, and it may not seem important to us now; but if these first colonists had not shown such foresight, the solution of our food problem would have been postponed for a very much longer time than it actually was.

To realize how highly early settlers prized these animals which they had taken so much trouble to bring with them in their small ships, we need only glance at some of their first laws. When the animals first arrived, there were cases where the death penalty was dealt out to those who dared to kill any of them. The reason was that at first these animals were used

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primarily for breeding purposes and dairying. As we noticed before, the settlers tried to obtain their meat supply principally from wild animals.

The first cattle imported into this country specifically for meat purposes were of the Spanish Longhorn type: hardy, swift, sometimes ferocious, and well able to withstand the hardships of pioneer life. But they were a long way from the type of animal known in some sections of England for its fine eating quality. Up to the Revolutionary War the raising of beef cattle here was on a very primitive scale.

The extent to which breeding knowledge has finally been developed and cattle breeds improved, thus making American livestock the finest for meat purposes in the world, will be described in a later chapter.

An old-time cowboy in action.



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Animal Husbandry Begins on East Coast

On the eastern coast in those early days "dairying, cattle-feeding, and hog-raising" became important industries. Such states as Virginia and eastern Pennsylvania developed what might be considered early ranching. Cities like Boston and even young Baltimore were beginning to assume importance as markets for farm-reared animals and their products. Also, as America expanded, the movement of meat animals from the seacoast continued westward.

England Abandons West Indies Meat Trade

By the time the New World colonists had learned to raise livestock with some degree of success, England had built up a trade with the West Indies in which livestock, barreled pork, beef, hams, and bacon were exchanged for sugar, molasses, rum, spices, and other products of the islands. When civil war broke out in England in 1640, however, the mother country found herself too busy with her troubles at home to carry on this trade successfully.

Early Packing in New England

In the meantime, the colonists had discovered the possibility of taking the meat even of wild animals and salting, smoking, and finally "packing" it in huge barrels or boxes for use in seafaring communities or at trading posts far from white settlements, or even for sale by local merchants. The New Englanders were accustomed to doing their own butchering in the fall

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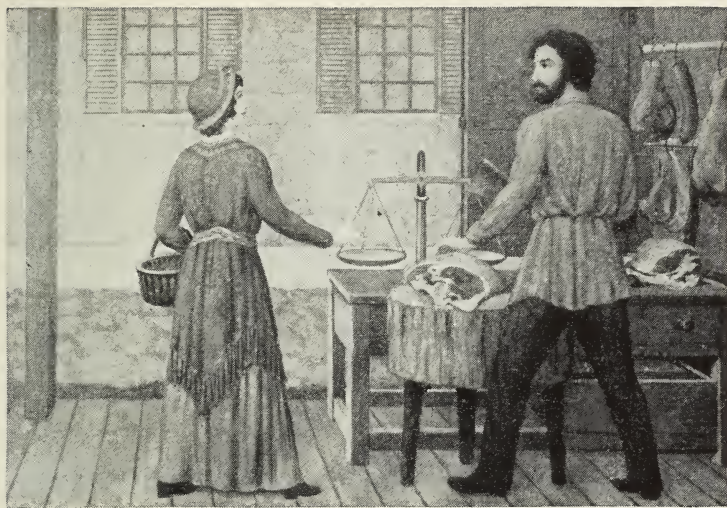
on their farms and “packing” most of the meat in barrels for use during the dreary, barren winters.

West Indies Trade Stimulates Colonial Meat Industry

When the mother country found it impossible to continue its thriving trade with the West Indies, the New England colonists saw an opportunity to end their own hard times by taking this trade over. They began to raise cattle and hogs in excess of their own community needs, and they welcomed the chance to trade the surplus barreled meat and the cured pork products they produced (not unlike the hams and bacon of today) for the West Indies’ molasses. The profitable business they developed is the foundation of many of the fortunes of old New England families of today.

The term “meat packing” originated at that time and has stuck until this day to that part of the meat industry which handles the meat from the time of the dressing of the animal up to the shipment of the finished products to retail dealers. History records that the “first American to give his whole time to the business of ‘packing,’ so far as can be known, was William Pynchon, of Springfield, Massachusetts.” He started, in 1655, to drive cattle to Boston, and was packing large numbers of hogs by 1662.

Today the word “packing” does not really describe the industry’s major functions accurately, for a relatively small amount of the meat processed actually



Meat merchant of colonial times.

is packed. The barreled salt pork so well known thirty or forty years ago is now packed for only a few lumber camps and a limited export demand.

The long struggle of the colonies for freedom from England culminated in the heroic Revolutionary War and, finally, complete independence. Then began the great westward movement of farmers and farming which has played so great a part in the formation of the vast, new meat packing industry.

Ohio Valley Farming Flourishes

As the caravans moved farther and farther west the wild American frontier receded. There seemed no end to the vast expanse of rich land the pioneers found as they pushed on. The Ohio Valley, especially, was found by the pioneers to be "fertile beyond their

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dreams, and particularly well adapted to the raising of corn. Farmers flocked there in great numbers, finally drove out the Indians after the battle of Fallen Timbers, and built themselves homes."

Industrial Revolution Brings Demand for New Livestock Areas

Then the Industrial Revolution arrived. Machines began to be used widely in all kinds of industrial pro-

duction. Commerce and production grew phenomenally. Transportation improved tremendously through the use of the newly-developed steamships and railroads. Almost overnight many villages and little towns developed into industrial centers with large populations.

Nearby farmlands could no longer produce enough livestock to meet the demands of these populous industrial cen-

ters. The cities were forced to look for a region where meat animals could be raised in sufficiently large numbers.



Corn raising in the Middle West.

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Middle West Livestock Boom

The broad plains and corn-producing areas of the Middle West seemed to fit their needs to perfection. The farmers had already begun to discover this. Originally, a good deal of their corn had been sold for the manufacture of whiskey. Before long, this source of income met a sudden end when the Federal Government placed a prohibitive excise tax on whiskey. It was then that farmers west of the Alleghenies realized they could best dispose of their corn by using it as food for hogs and cattle.

The Middle West soon became the most profitable hog- and cattle-raising section in the world.

The problem of transportation, however, was a troublesome one. The fertile land beyond the Alleghenies, which was being opened to farming before and after the War of 1812, could and did produce livestock in large numbers. Unfortunately, there were no railroads or other convenient forms of transportation available in that region to carry the animals raised to the Eastern cities which called for them.

Livestock Driven Across Alleghenies to Eastern Markets

During the period following the War of Independence, cattle from farms near Eastern cities had been driven to such markets as Baltimore, Philadelphia, New York, and Boston. When the centers of livestock production moved west, it again proved necessary to drive the cattle to the Eastern markets in this manner

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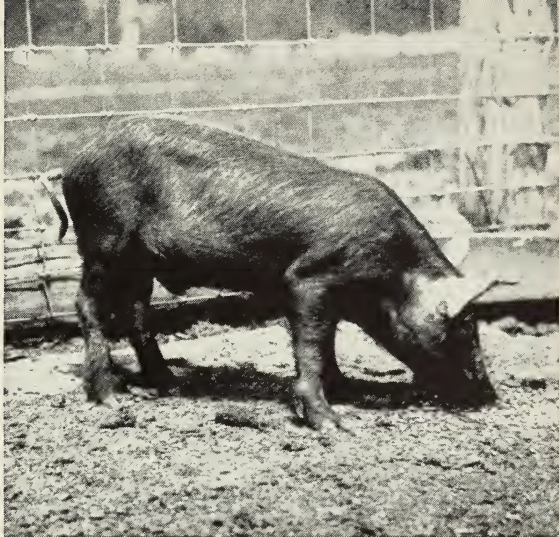
—this time across the towering Allegheny Mountains. The only other way was the expensive one of shipping the live animals or cured meats by boat down the Ohio and Mississippi Rivers and up the Atlantic coast.

In 1805, George and Felix Renick of the Scioto Valley of southern Ohio drove “the first lot of fat steers” across the Alleghenies to faraway Baltimore by much the same route as that of today’s Baltimore & Ohio railway, whose passengers now dine on steaks and chops. In Maryland, such cattle sold for twenty-five dollars each (and twenty-five dollars in those days was a far larger sum than it is today), plus a dollar for each inch of their waist-line circumference over a certain average. That was a rough valuation which is a long way from the modern cattle buyer’s careful appraisal of each animal’s value and possible return in meats and by-products.

Hogs were also driven over the mountains—sometimes 5,000 at a time. There were, in fact, about one hundred thousand hogs which came to market in just this manner. Most hogs of that day were free-roving, forest-fed “razorbacks.” Their ancestors one hundred years earlier had fought off wolves; so eight or ten miles a day of nearly vertical climbing was no particular hardship for them.

Eventually, however, it was found that hogs could not subsist so well on grass, nor could they travel so long a distance as cattle. Thus cattle—and later sheep as well—proved more practical for the great Eastern “drives,” and for that reason more profitable and

The razorback, described by one observer as, "long-legged, slim, lopsided, large-boned, gaunt-bodied, with arching back and bristles erect from head to tail."



attractive to raise. It was in these Eastern drives that the name of "drover" was given to those who guided the animal herds to their destination.

Three Main Routes Followed

Records indicate that there were three routes followed in this Eastern traffic which continued to be an important feature of the American scene until about 1825. One was the route (first followed by the Renicks) over the mountains, down through Wheeling, West Virginia, and then either up to Philadelphia or, more likely, to Baltimore. The others were that of the Mohawk River valley, now followed by the New York Central, and that via Wellsville to Philadelphia, roughly paralleling the present Pennsylvania Railroad.

Waterways Used for Transportation of Meat

While the driving of livestock to the Eastern markets was still of great importance, the growing meat

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industry began to make wider use of the inland water routes of the Middle West and East. As we would naturally expect, these natural waterways and the canals built at that time proved particularly useful for large interstate shipments and foreign trading.

River Traffic to the South

At first, transportation through the Ohio and Mississippi Rivers to the south was limited. There were no such population centers in the South as in the industrial East, and therefore no very great demand for meat.

However, the extension toward the southwest of the cotton-growing areas brought with it a simultaneous increase in population in this area. Then, too, came the invention of the steamboat and its introduction on the Ohio and Mississippi Rivers. Finally, the rivers were connected with the Great Lakes by a system of short "feeder" canals.

Great Lakes and Canal Routes to the East

In the East, as well, waterways proved very valuable. The New England States, and New York and Pennsylvania, were among the first to make use of this convenient form of transportation. In the main, the shipments by water consisted of meat, not livestock.

Probably one of the best known of the inland waterways was the Erie Canal, which was operated chiefly as a route for transporting grain from the Middle West to the East. Through this route,

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some of the meat products were shipped to Eastern markets, by way of Lake Erie from Detroit to Buffalo, then to Utica, down the Mohawk Valley to the Hudson River, and thence to New York and Boston.

Cattle Production Moves Farther West

So greatly did the Erie Canal influence agriculture in general along its course that cattle production was pushed farther west, where it still had access to the Erie waterways, and took over the grazing areas formerly devoted to sheep, while the sheep were pushed still farther west to the open country.

Railroads Replace Waterways

The waterways continued to have considerable importance for a period of about forty years. The Civil War brought a decisive setback to the river traffic, with the breaking up of the Mississippi route, from



Passengers and freight were transported by boat on the Erie Canal.

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which it never quite recovered. But it was the improvement of railroad facilities following the war which finally brought about the eclipse of river and canal traffic, particularly along the southern route to New Orleans.

Cattle Trails in the Middle West

In the meanwhile, great ranches had begun to appear west of the Mississippi. From these ranches, livestock was driven over established "cattle trails" to various collection points, of which Cincinnati, and later St. Louis and Chicago, soon became the most important.

The cattle herders of the Middle West and West, who drove their livestock to these central collection cities, had a picturesque history. Colorful livestock fairs were held each year at various towns through which the herds regularly passed. These lively fairs—a great occasion for the surrounding countryside—were to make an important contribution to the progress of America's meat industry. They furnished a chance for farmers and ranchers to compare the quality of stock raised in various parts of the country, and they stimulated keen rivalry among the farmers to outdo one another in producing the finest cattle, hogs, and sheep. The importance of this rivalry was tremendous. It led to the introduction of those improved methods of breeding and feeding meat animals, which have finally made American livestock pre-eminent throughout the world.



Shallow-draft steamboats on the Mississippi River.

Packers of Early 1800's Perform Simple Operations

Naturally, the existence of large, remote cities, and the necessity, therefore, of driving livestock long distances to market, made it impractical for much dressing of meat to be done on individual farms. Instead, the dressing was done by the "packing houses" established in the cities.

In most cases the earlier meat packing houses had served only the communities in which they were located. Now they began to extend their activities and attempted to ship animal carcasses to somewhat more distant points.

Up to 1850, the meat packer was usually a warehouse man who packed the farmer's livestock on commission as swiftly as possible, and then tried to ship the meat before the rivers froze over, or before warm weather again set in. Often the packer of those days



Chicago's early stock yards with Myrick's Tavern in the background.

had the animal carcasses dressed in some other plant, himself paying a commission for this service. The dressing was done without any machinery—a primitive contrast to present-day methods.

Early Packing Towns

Among the first Middle-western towns to reach importance as slaughtering centers was Cincinnati, nicknamed "Hog Town" or "Porkopolis." Much of the work there and in the large packing establishments which grew up in Buffalo, Milwaukee, and Chicago, was done, however, in the winter. Meat packing was then a seasonal industry which could not be conducted during the warmer months. No way had as yet been discovered to keep perishable fresh meat for any long period; refrigeration was then unknown.

Cincinnati, favorably located both for water and rail transportation, held its position as the leading pork-packing center until the time of the Civil War.

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Growth of Livestock Markets

In several of the larger cities where meat packing plants were located and transportation facilities to other cities were good, it became necessary to establish central livestock markets so that farmers could sell their stock quickly and conveniently. Great flocks of cattle, hogs, and sheep began to pour into these markets. Some were purchased by Eastern buyers who shipped the live animals to meat packers in the New England and Middle Atlantic States. Most were bought and slaughtered by meat packing companies which had plants at or near the markets themselves.

In 1837, Chicago's stock yards were located near Myrick's Tavern, three miles south of the city. The famous Bull's Head Market was opened in Chicago in 1848. Other markets quickly followed.

With their appearance, the era of early development of the meat industry can be said to have been brought to a close.

Study Questions

1. What has been one of the biggest difficulties faced by the meat industry in the course of its development in the United States?
2. What sources of meat did the early American colonists have?
3. In what way was the meat industry during colonial times given an opportunity to develop?

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4. Is the meat packing industry today the same as that of colonial times? Who was the first American meat packer?

5. As our country expanded, what was the first area found to be especially well suited for the raising of livestock? Why?

6. How and where did the first drovers operate?

7. What special service did the inland waterways perform for the meat industry?

8. How did the early cattle fairs help livestock raisers?

9. What were the functions of the meat packers of the early 1800's? Which were the first important meat packing centers of the Middle West?

10. What was the reason for the setting up of livestock markets?



Round-up scene.

CHAPTER III

The Meat Industry Since 1860

From the Civil War
to the Present Day

THE Civil War opened a new epoch in the meat industry.

The national unity achieved by the war brought with it the desire and capacity to move forward along the path of greater and more unified industrial progress. Great stimulus had been afforded to manufacturers and food producers because of the need for large-scale production to meet the armies' tremen-

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dous requirements. The period of "reconstruction" which followed was really a period of new, more advanced, and more rapid "construction." The Industrial Revolution, begun some years earlier, now made immeasurably greater strides forward. Large-scale production became the order of the day. Greatly increased immigration contributed to the rapid growth of the cities. Thus, the meat industry had to seek new means of keeping pace with the phenomenally growing demand for its products.

Meat Industry Faced by Four Great Problems

It became clear before very long that, to meet this demand, it would be necessary to utilize for livestock raising not only the agricultural regions of the Middle West but also the extensive ranges of the West.

1. Transportation; 2. Cash Livestock Markets

But before the range lands of the Far West could be used for raising cattle in really large numbers, two important needs had to be met. In the first place, there was no means of transporting the cattle back to the Eastern markets which called for them, since transcontinental railroads had not yet been built. Secondly, the farmer who risked his fortune in raising cattle could not be sure of a cash market when he was ready to sell his product.

3. Refrigeration; 4. Leadership

The handling of shipments of fresh meat—dressed meat—was an even greater problem, since refriger-

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ated transportation was unknown. There was a crying need for a leader, or leaders, in the industry with broad enough vision to see the tremendous possibilities that lay ahead, and sufficient courage and ability to pit themselves against the seemingly insurmountable obstacles that had to be overcome.

Stimulated by the increased demand for meat, as the population grew, solutions to all four of these pressing needs developed at approximately the same time. Within the brief period from 1865 to 1875, great railroads were built which penetrated the "American Beef Belt" of the Mississippi and Ohio Valleys, and tapped the vast range lands of the West and Southwest; livestock commission firms, organized on a small scale as early as 1857, helped to change the selling of livestock from a credit to a cash basis; experiments with a refrigerator car were made by George H. Hammond; and finally, two men arrived in Chicago who, as competitors, were destined to become the leaders of the industry during this period of its greatest need. These men were Gustavus F. Swift and Philip D. Armour.

Many of the details of these developments form an interesting story in themselves, as we shall see.

The Opening of the Range

Following the Civil War came one of the most colorful chapters in our country's history—the opening of the range and the great movement west. It is concerning this period that our rich and colorful stories of life on the range are based.

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Of the development of the Western range, one writer has said: "It is a story which deals with more than meat, hides, and tallow (fat); its memorable chapters have as much to do with men and their achievements, as with animals and their products. Its hero is as much the cowboy as the beef steak.

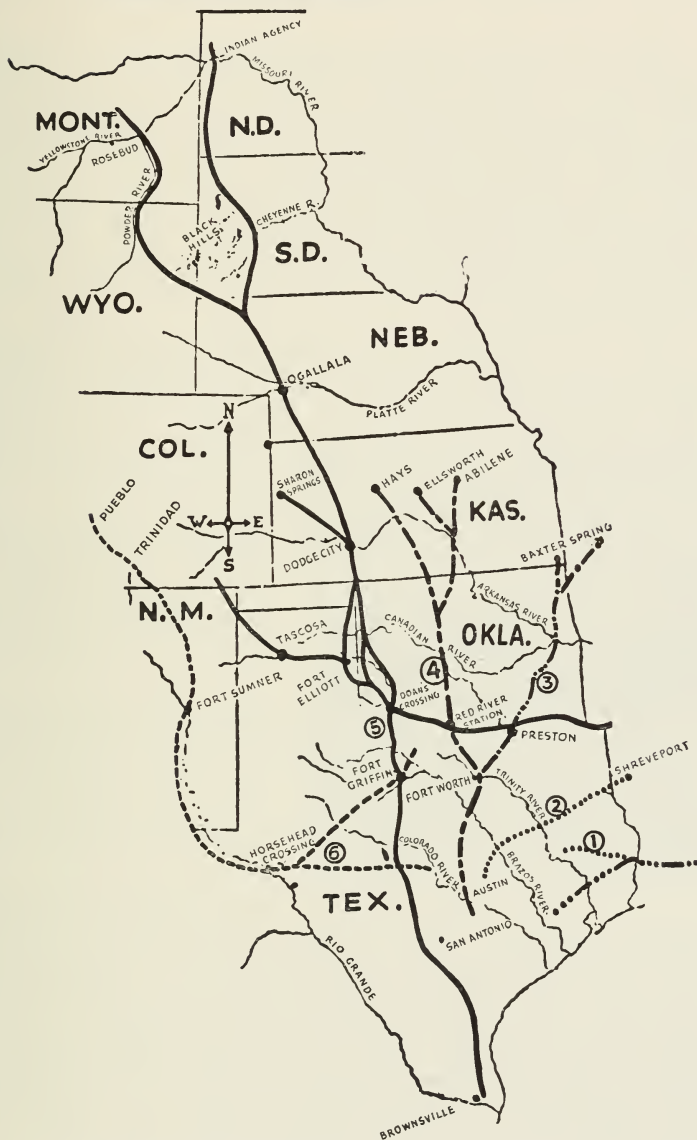
"The story . . . is woven of bravery and of cowardice, of heroic generosity and sordid thievery (what lower creature in the ranch-lands than the cattle-thief?), of gentleness, murder, and sudden death—of the thousand and one unforgettable happenings of life on the American frontier"

Cattle Trails Developed

With no railroads operating in the Far West, range cattle had to be driven under their own power to the distant terminals connecting with the still more distant consumer markets. The cattle trails used were grazing routes following the pasture season northward.

The cattle trails changed as great events altered the course of the country's history. For example, until about the time of the Civil War, Texas—the great ranching state—almost exclusively had supplied the northern markets. When the war broke out, Texas found herself completely cut off from this outlet, and ranching in Texas became anything but profitable. This was one of the real causes of the opening of the better known cattle trails in the late 'Sixties. Texas ranchers had to find new outlets.

Old Cattle Trails.



No. 1, Opelousas Trail; 2, Shreveport Trail; 3, Shawnee Trail; 4, Chisholm Trail; 5, Dodge or Western Trail; 6, Goodnight-Loving Trail.

(Drawn by T. C. Richardson of *Farm and Ranch*.)

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One of the best known and most traveled of these trails was known as the Chisholm Trail which led from Texas to Abilene, Kans., with other branches to Ellsworth and Hayes, Kans. Over this trail the average drive was ten to twelve miles a day, and it generally took about two or three months to cover the full distance. Cattle can be shipped that distance today in twenty hours.

Also well known was the Dodge or Western Trail which led from Texas, through Oklahoma, western Nebraska, and Wyoming, to Montana. The trek to Wyoming alone was a long trip which took about one hundred seventy-five days—nearly six months!

The Goodnight-Loving Trail, another popular one, led farther west through New Mexico to Colorado. It will be noted that some of these trails traveled to grazing lands to the northwest to mature the cattle before shipment to market.

So fast did the cattle-driving business increase, that in 1870, it is reported some three hundred thousand cattle reached Abilene alone. The next year, it is said, double that number went through this famous cattle town.

In 1871 and 1872, however, this business met with serious setbacks. The winter seasons were bitterly cold, and caught cattle owners without the extra feed required. Also, the cattle passed through a great scourge of Spanish Fever, that dread cattle disease which has done so much to alter the history of Western cattlemen. The driving boom and, with it, Abilene's thriving cattle business, were ruined.

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Railroads Replace Trails

Other cities soon took over the business which had made Abilene. They did not reign long, however, for the railroads finally pushed their way out to Texas. Although this did not completely put an end to the romantic era of trails and cattle driving, the opening of Oklahoma to settlement in 1890 did. It created such a barrier—so great a break in the open grazing lands followed by the chief trails—that cattle droving was practically abandoned by the next year. The broad, free-roving cattle trails had served their purpose in developing the open range country, and their day was over.

The new railroads did more than replace the cattle trails; they made the use of the range for livestock raising far more desirable than ever before. At the same time, added stimulus was given to the livestock industry by the constantly increasing importance of central markets where the livestock is purchased, for cash, by meat packing concerns and other buyers. In these buying and

One of the early "Camel-back" locomotives used in freight service from 1848 to 1873.



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selling transactions, commission men serve as representatives of the farmers.

Artificial Refrigeration Invented

But perhaps the biggest obstacle to the growth of the meat industry was removed with the invention of refrigeration and refrigerated transportation.

It is easy to understand why the obstacle had been so great. Transportation of the live animal meant the shipping from West to East of a vast amount of bulk and weight which the Eastern consumer could not use. This useless bulk was a costly shipping item. Because relatively few by-products had been developed, less than sixty per cent of the live steer was utilized after being dressed. It was even less in the case

An early drawing of the Chicago Union Stock Yards
which were opened on Christmas Day, 1865.

Courtesy Chicago Historical Society



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of sheep. On the other hand, if the livestock were dressed in the West, and only the edible portions shipped East, there was the difficult problem of getting the meat to the consumer in a fresh condition.

The longed-for solution—refrigeration—came at last, but not without many difficulties, much trial and many errors, and a bitter and long-drawn-out battle.

In those days, the principles of refrigeration were by no means unknown. The use of cold in preserving perishable foods was in no way new—no newer than mankind's most ancient recollections. Efforts to preserve food successfully in times of plenty by freezing, so that there would be enough in times of scarcity, are described in ancient historical accounts. Sir Francis Bacon, who lived in the sixteenth century, is said to have died of pneumonia contracted while he was trying to preserve a chicken by putting snow into it.

By the time of the Civil War, meat packers were using natural ice refrigeration for their plants; but it was a rather cumbersome business. The ice house had to be so huge, in order to be effective, that it often dwarfed the rest of the meat packing plant.

Early Experiments With Refrigeration

Artificial refrigeration was a natural outgrowth of the early experiences. As a matter of fact, there had been some crude experiments with artificial refrigeration almost a hundred years earlier. A Massachusetts man named Perkins is credited with having invented in 1776 the forerunner of the first machine which could produce ice in commercial quantities; his ma-



Obtaining ice for natural ice plant.

chine was something like the ones we see used in the artificial ice-skating or ice-hockey rinks of today.

The modern chilled-meat trade is said to have originated at about the end of the Civil War. The Robins Brothers, dealers located at Fulton Street Market in New York City, are said to have refrigerated poultry and game as early as 1865. The first refrigeration plant in connection with a Chicago meat packing house was set up about 1880.

The industry's greatest problem, however, was solved, and the remarkable development of the American meat packing industry of today was made possible by the invention of the refrigerator car.

Refrigerated Transportation at Last

The earliest attempts to refrigerate freight cars, according to an authority, were probably those made by the Michigan Central Railroad in the early 'Sixties in carrying fresh meat from Chicago to New York or Boston. The first really practical—though

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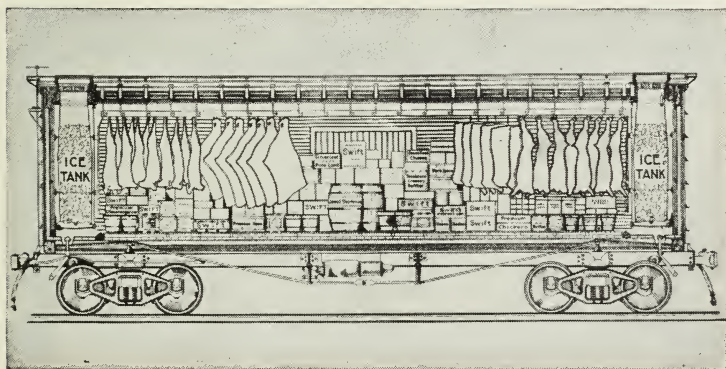
crude—refrigerator car used by a Western meat packer was designed by G. H. Hammond in 1875. The obstacles to be overcome, however, in making this car truly serviceable were still many and thorny.

It was early found that circulation of air was required for successful refrigeration. Furthermore, it was found that meat must not be allowed to come in contact with ice, or it would become, almost immediately on removal, discolored and spoiled. Experiments were then made to suspend meat from the ceiling of the cars. The loosely-hung quarters of beef caused a sharp sway as the train rounded curves, resulting in several train wrecks. These and other problems were slowly but surely solved.

Difficulties in the Way of Refrigerated Transportation

While all this was going on, it must not be supposed that Easterners in the meat business were taking the

Cross-section of a modern refrigerator car.



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new development with good grace. They could easily see that if refrigerated transportation were to be perfected they could not possibly compete successfully with the cheaper areas of production in the West.

It was obvious that the Western meat producers were going to be able to lower their prices still further when refrigerated transportation was fully developed, inasmuch as they would be able to ship the edible parts of the animal alone, and thus save on shipping costs by eliminating useless expense.

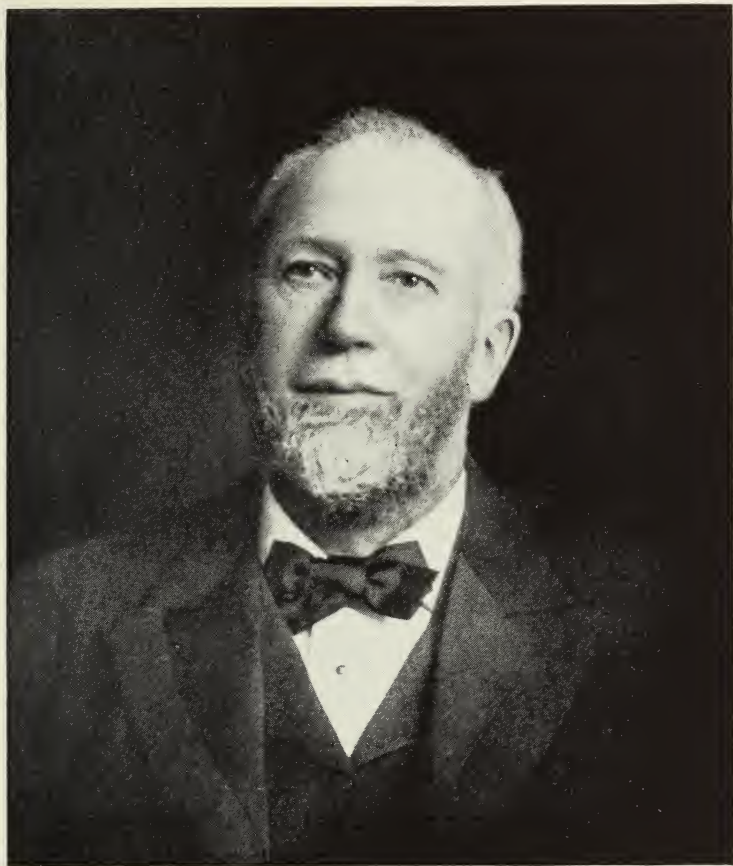
So keen were the fear and rivalry of the Easterners that they stirred up in Eastern markets an overwhelming prejudice against Western meat, which they declared deteriorated during transit. Further, the railroads refused to build refrigerator cars, partly because of their Eastern prejudice, but principally because they did not want to lose their livestock shipping business for what they supposed would be the smaller profits of dressed meat shipping.

The Western meat packers were also awake to the possibilities that lay ahead, however, and refused to be blocked by the opposition of the Eastern meat business or railroads.

Western Meat Packers Win Fight for Refrigerated Transportation

Men like Gustavus F. Swift, founder of the Swift meat packing organization, and Philip D. Armour, who established the Armour firm, bent every effort to raise the money and get the cooperation needed to

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Gustavus Franklin Swift, 1839-1903

At the age of 16, young "Stave" started his career with the purchase of a heifer from a local farmer. He dressed the animal and sold the meat to his neighbors along the Cape Cod roads near Barnstable, Mass. Later he became a retail dealer, then a cattle buyer in the East. In 1875 he came to Chicago to found the meat packing organization which bears his name.

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build and develop refrigerator cars. Prejudice-blinded Easterners called Swift "crazy"; even in the West, many regarded his efforts as a risky gamble.

But the Western meat packers stubbornly pressed on. The railroads having failed to grasp their opportunity, Swift and Armour proceeded to build and operate their own refrigerator cars. At present some of the meat packers own cars, and the others lease them from car builders or rely upon railroad-owned equipment.

It has been well observed that today "the people of the United States are as dependent upon refrigerator cars for their food supply as the people of England upon ships."

The Industry Begins to Grow

We can well imagine how tremendous was the effect of the era of refrigeration upon the meat industry and upon the nation as a whole. A few significant facts will indicate this influence clearly.

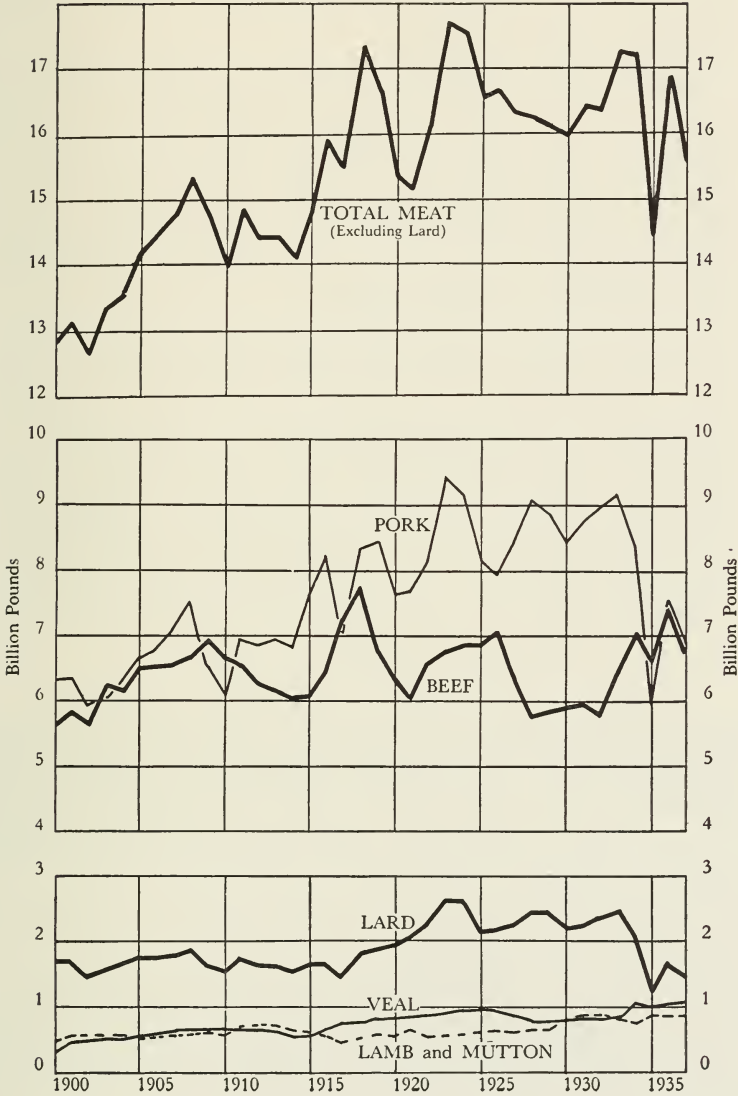
The meat industry grew at a breathtaking rate in many towns which had access to both the rail and water routes. It was said, for example, of one city—Cincinnati—that she "originated and perfected the system which packs 15 bushels of corn into a pig, packs the pig into a barrel, and sends him over the mountains and over the ocean to feed mankind."

The foreign demand for lard began to increase very rapidly, and soon it found international use in

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Meat Production in the United States—1900-1937

Data from U. S. Department of Agriculture.



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baking and cooking, as a substitute for butter, and also in the form of lamp oil. This was a further spur to the industry's growth.

With the growth of Chicago as a real meat packing center, and with the increasing ability of the meat packing companies to pay higher prices to livestock producers, the industry grew even more rapidly. Improved rail facilities tended to concentrate the meat packing industry in the large cities, and to decrease meat packing in small towns.

Little by little, with the constant improvement of the refrigeration system, and with the constant westward movement of the railroads, the large supply of meat from the West began to move speedily and smoothly by rail into the great Eastern markets, in ever-improving quality. Almost every town and hamlet, no matter how remote, at last saw the day when fresh meat of practically every variety could be had in any quantity throughout the year.

It has been said—and it is worth remembering—that “the discovery of antiseptic surgery was not more epoch-making than was the solving of the problem of ‘cold transport’ for foods.” It is a contribution of which the United States—and its meat packing industry—may well be proud.

As for the raw materials of the meat packing industry—the meat animals—they today take first place in agriculture. The farm cash income from meat animals in this country, on an average for the twelve-year period preceding 1936, was almost one

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and one-half times as great as that received from any other single farm source.

Consumption of meat in this country has also reached a fairly high level. In New York City alone about 1,000,000,000 pounds of meat are consumed annually. The eleven North Atlantic states—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, and Maryland—are said to consume approximately one-third of the nation's total meat supply today. They produce only four per cent of it.

The American people as a whole eat, on the average, more than 16,000,000,000 pounds of meat annually. During the ten years 1928 to 1937, inclusive, they averaged about 64 pounds of pork, 51 pounds of beef, $7\frac{1}{4}$ pounds of veal, and $6\frac{1}{2}$ pounds

Modern meat packing plant.



THE STORY OF MEAT

of lamb a person each year. The average daily consumption of meat for America's total population is a little more than $\frac{1}{3}$ of a pound a person. This amounts to about 129 pounds a person annually.

According to the latest census*, there were 1,160 meat packing establishments in the United States. The meat packing industry was—in value of product at the plant—the third largest in the nation that year. It has often been in first place.

Study Questions

1. Why did the rapid development of the meat industry become imperative immediately after the Civil War?
2. What were the four greatest needs of the meat industry at that time?
3. For what purpose were the cattle trails of the range lands used? Where were the main trails located?
4. What finally took the place of the cattle trails? With what result?
5. What objection was there to the shipment of the live animal to market? What solution was found?
6. What are the advantages of refrigerator-car transportation?
7. Who was the first packer to use a practical type

*Census of manufactures report for the year 1937.

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of refrigerator car for shipment of fresh meat?

8. Who opposed the building of refrigerator cars? Why?

9. How did the refrigerator car finally come into widespread use?

10. Can you give any facts to indicate how large the meat industry has become in the United States?



Livestock train traveling to market.



Driving sheep to pasture in the spring.



Cattle on the range.

CHAPTER IV

The Raising and Marketing of Livestock

How Cattle, Hogs, Sheep
Move From Farm to Plant

IN the United States in 1938, approximately 14,743,000 cattle, 9,117,000 calves, 22,518,000 lambs and sheep, and 59,089,000 hogs were utilized to furnish food products for use at home and abroad.

Livestock Areas

These cattle, calves, hogs, lambs, and sheep are raised in every part of the United States, but they are far more numerous in some parts of the country than in others. The Corn Belt region of the Mississippi Valley and the vast range lands of Texas and the West furnish most of them.

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There are many breeds of cattle, hogs, and sheep, some of which are more valuable for food purposes than others. Cattle, for example, are classed as beef or dairy, according as they are best suited for the production of meat or of milk. Some breeds known as dual-purpose cattle are fairly well adapted to both purposes; but beef breeds are relatively poor milk producers, and the meat of the best dairy cattle is inferior to that of those raised especially for beef.

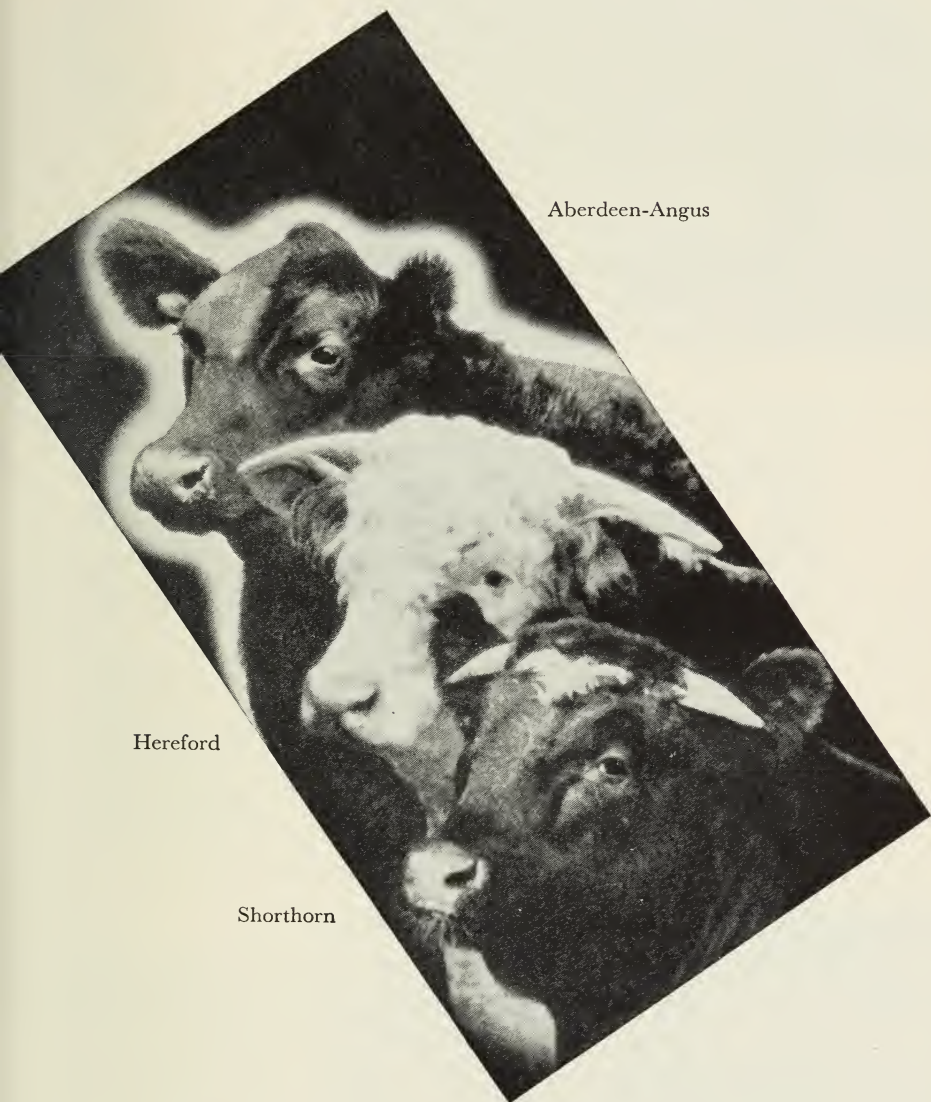
Cattle Breeds

In general, the most desirable beef cattle are “blocky” and compact in form with chests wide and deep, necks and legs short, ribs well sprung, well-developed hindquarters, and broad backs. The proportion of flesh to bone is large, and the muscular development is greatest in the back, ribs, loins, and thighs from which the cuts in greatest demand are obtained. Herefords, Shorthorns, and Aberdeen-Angus are popular beef breeds in this country on account of their shape, weight, adaptability to climate, and the fine quality of meat which they yield at a minimum cost. One very important quality in cattle raised for beef purposes is their ability to mature at an early age.

Hog Breeds

Hog breeds are divided into two general classes, the butcher and bacon types. Hogs of the butcher type are by far the most common in the United States. They are low set and compact with wide, deep bodies. They thrive especially on corn. The best

RAISING AND MARKETING OF LIVESTOCK



Aberdeen-Angus

Hereford

Shorthorn

Representatives of the three leading breeds of beef cattle
in the United States.



A typical hog raised in the
Midwestern Corn Belt
weighs from 180 to 220
pounds when marketed at
6 to 8 months of age.

known breeds are the Poland China, Berkshire, Duroc-Jersey, Chester White, and Hampshire, the last named being readily distinguished by the white band which encircles the body and includes the fore legs. These hogs yield an excellent quality of bacon and other cuts which are very popular in the United States.

English people like their bacon very lean. For this reason we find in Canada and to some extent in some sections of the United States a number of so-called bacon breeds such as the Tamworth and Large Yorkshire. These hogs are narrow in width, long in legs and body, and lanky in appearance.

Sheep Breeds

Sheep are raised both for the meat and the wool which they yield. Here again nature has decreed that the breeds best suited to the one purpose are not so well adapted to the other. They are classed as medium-wool, long-wool, and fine-wool. Although the wool is a very important by-product, the meat

RAISING AND MARKETING OF LIVESTOCK

packer is primarily interested in lambs for food purposes. The medium-wool breeds are best in this respect, those better known being the Southdowns, Shropshires, Hampshires, Oxfords, and Cheviots. Such long-wool breeds, however, as the Lincoln, Cotswold, and Leicester, and the fine-wools known as the Merinos and Rambouillets are also valuable for food purposes. There is also a considerable number of lambs marketed in the United States which are a "cross" between meat-type and wool-type breeds.

Improvement in Livestock Breeding

Great progress has been made during the last half century in the scientific breeding of livestock. The best cattle, hogs, lambs, and sheep raised in the United States before the Civil War would be considered of no better than average quality today. Livestock breeders have not only greatly increased the number of pure-bred animals in the United States but have also raised the general standard of quality of mixed-bred stock in other parts of the world. Their efforts have been directed chiefly toward producing animals that yield a larger percentage of edible products, that

Most spring lambs weigh from 75 to 90 pounds when brought to market, and will provide from 35 to 45 pounds of meat (a yield of 45 % to 48 %) as well as 6 to 9 pounds of wool (8 % to 10 %).





The International Livestock Exposition in Chicago is an important annual event to livestock producers and others in the meat industry.

provide meats of superior tenderness and flavor, and that mature rapidly at a minimum cost to the farmer. Livestock fairs and exhibitions have contributed greatly toward the encouragement of scientific breeding as has also the work of our agricultural colleges, experiment stations, and the boys' and girls' livestock clubs promoted by them. The result is that the farmer finds that his cattle, hogs, and lambs command a better price in the market and the public gets the benefit of a food superior to that in former days.

Convenient Marketing Important

We have already mentioned the fact that two-thirds of the livestock produced in the United States is raised west of the Mississippi River. The entire Mississippi Valley, however, is dotted with farms upon which cattle, hogs, and sheep are raised for food pur-

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poses. Outside of this area, moreover, many farms exist which, taken as a whole, contribute very considerable numbers of these animals to the total available supply.

In order that this important branch of agriculture may prosper, it is necessary that livestock producers have a convenient and reliable means whereby they may sell stock which they have raised as soon as it is ready for the market. Farmers desire to market their cattle, hogs, and sheep quickly, for cash, and at the lowest possible expense.

Two Main Marketing Agencies

To meet this need, there has been developed in the United States a system of marketing livestock that is unequaled in any other part of the world for efficiency, economy, and volume of business handled.

Toward the close of the International Livestock Exposition each year, many of the cattle which were on exhibition are auctioned off to the highest bidder.



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The bulk of the livestock is shipped by producers to central markets where it is sold by men who are paid a commission for their services. The remainder may be shipped by producers direct to meat packing plants, sold locally through auction markets, or sold in the country to meat packers and other buyers.

Central Livestock Markets

Central livestock markets have been established in more than 60 cities, the most important of which are located in the Middle West. At these markets there are stock yards suitably equipped with fenced enclosures, pens, and sheds for accommodating all livestock which may arrive. Livestock commission firms

There are 7,600 pens in the Chicago Union Stock Yards, a section of which is shown below.





Buying cattle in the Chicago Union Stock Yards.

have their offices in buildings located in these stock yards. When a livestock producer on some distant farm or ranch has cattle, hogs, or sheep which he is ready to sell, he usually ships them to one of these commission firms. Upon their arrival, which is often during the night, they are unloaded and placed in pens by employees of the stock yards.

Commission Men and Buyers

Representatives of the commission firm to which the livestock has been consigned trade with buyers

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representing the meat packing companies which have plants located in the city. There are also other buyers who represent other meat packing companies at more distant points, some of which may be hundreds of miles away. Still other buyers are present looking for livestock, especially cattle, that are not yet fat enough to be desirable for food purposes but that are bought and shipped back to farms, to be fed and fattened by persons known as "feeders."

To facilitate the sale of livestock at the central markets, certain rules have been adopted governing the transaction of this business. The first regulations of this sort were made by the livestock exchanges which exist at most of the large central markets. Since the passage of the Packers and Stock Yards Act in 1921, these markets have been under the supervision of the United States Government. Under the authority of this act, the government has issued both general regulations applying to all central markets and local rules to fit the conditions at each particular point. In issuing these regulations the government has adopted many of the rules and customs previously followed by the livestock exchanges.

Livestock Exchanges

The livestock exchange is an organization comprised of individuals or firms (mostly commission men) engaged in the business of selling or dealing in livestock in the market where the exchange is located. Membership may be obtained by paying a



Exchange Building, containing offices of commission firms
in the Chicago Union Stock Yards.

membership fee and the annual dues and agreeing to abide by the rules. The organization usually has its headquarters in a building at the stock yards in which the commission firms included among its members have their offices. Most local livestock exchanges are members of a nationwide organization known as the National Livestock Exchange which has its office at Chicago.

Livestock exchanges make rules providing for proper care of the animals marketed, check the financial responsibility of their members, determine the hours of the day within which sales may be made, maintain a high standard of ethics, etc. There is no rule which requires a person or firm to belong to the livestock exchange in order to do business in the local

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market, and a certain amount of such business is actually done by persons or firms which are not members. Such operators, however, come under the jurisdiction of the Packers and Stock Yards Administration and are under the supervision of the Government. The customs and regulations are so generally understood and accepted that they are seldom violated by anyone.

Competition in Markets

Competition among the buyers is very keen because they are all anxious to buy the full number and exact quality of cattle, hogs, and sheep desired by their companies. The commission men, on the other hand, want to please the farmers for whom they are acting so that they will give them more business. They therefore try to obtain the highest price possible for all livestock consigned to them and also endeavor to sell it as soon as possible in order to avoid shrinkage and to keep down the charges which the farmers have to pay to the stock yards company for the feed consumed by the animals until they are sold.

Selling is done by a system of competitive trading, with the commission men endeavoring to get the highest price. When livestock receipts are light, the commission men naturally ask for higher prices because they know that there are not enough animals on sale to supply the demand. On the other hand,

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receipts may be so heavy as to glut the market in which case prices are likely to decline.

Under this system farmers are able to ship their livestock to any central market with absolute certainty that it will be sold promptly, at a fair price, and for a known marketing expense, and that a check will be mailed to them within a few hours after the sale is made.

Direct Selling

Although most livestock is sold at central markets, another method known as "direct selling" is used by many farmers, particularly in the case of hogs. Meat packing plants have been established in hog producing areas located at some distance from central markets. These are referred to as "interior packing plants," in contrast to those plants located adjacent to central markets.

The interior plants have grown in recent years for various economic reasons, such as good roads, the motor truck, radio, and intense competition of meat packers.

The growth of the interior plants naturally absorbed livestock that formerly went to central markets, and, as a result, some meat packers established buying stations (also known as concentration points) in these producing territories in order to obtain livestock supplies.

Competition between the buyers for the interior packers and the buying stations, as well as competi-

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tion from the central markets, is very keen. This is indicated in a study of the direct marketing of hogs made by the United States Department of Agriculture. The report* issued by the Department following this study stated also that direct selling did not have any definite effect upon the price of hogs.

Study Questions

1. Why are the largest meat packing plants located in the Middle West?
2. Describe the appearance of the most desirable type of beef cattle. Name three of the principal beef breeds of cattle.
3. Why are bacon type breeds of hogs raised less extensively in the United States than those of the butcher type?
4. What objects do scientific livestock breeders seek to achieve in their efforts to improve animals used for food purposes?
5. What is a central market for livestock?
6. What is done with the farmer's livestock when it arrives at a central market?
7. Why are the men who actually sell it called commission men?

*U. S. Department of Agricultural Economics miscellaneous publication No. 222, entitled "Direct Marketing of Hogs."

CHAPTER V

The Main Functions of the Meat Packing Industry

Fresh and Cured Meat, Manufactured
Food Products, By-products, Dairy
and Poultry Products

LET us go on a trip through a modern meat packing plant. We can begin at the point where the animal that is finally going to end up on the sales counter of the retail store as juicy steaks, chops, or other cuts, has just arrived in the plant. We soon find that every operation is organized so carefully that simply by moving from one department to the next, or from one building to another, we can follow the whole process right to the point where the cuts of meat are ready for shipment.

Suppose we follow the hogs first on their short trip through the plant. On their arrival, they are driven into one of the inside pens, generally on the top floor.

Animals Rested on Arrival in Plant

Their new owners, the meat packers, have learned that, to maintain high quality in meat, it is necessary to delay the dressing of cattle, hogs, or sheep when they are tired or nervous. Usually, therefore,

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the livestock are allowed to rest after they have been brought in. The pens are carefully cleaned and thoroughly ventilated. In the warmer months, a spray of cool water helps to keep the animals clean and comfortable.

Conveyors or Disassembly Line

Soon after their arrival, all of the animals (hogs in this case) are sent to the dispatcher for slaughter. They are driven into a small pen in order to restrict their movements. A shackle is fastened to the hind leg of each hog and this in turn is attached to a large vertical wheel. The hogs are hoisted into the air and moved ahead on an overhead trolley or conveyor.

This machine is the beginning of the swiftly moving "disassembly" line, introduced by the meat packers. The slaughtered animals, suspended head down-



These hogs have been assembled on the farm for shipment to the nearest livestock market, for sale to meat packers.

Dressed pork on exhibit in a refrigerated room of a large meat packing plant.



ward from a moving chain, or conveyor, pass from workman to workman, each of whom performs some particular step in the process. So efficient has this procedure proved to be that it has been adopted by many other industries, as for example in the assembling of automobiles.

Slaughtering Hogs

The hogs proceed along the disassembly line to a platform where one of the workmen, a "dispatcher" or "sticker," by a swift movement cuts the main artery in the throat. This operation must be skillfully performed because otherwise there would be insufficient bleeding, resulting in a lowering of the quality of the meat.

The hogs then pass to a scalding vat, heated to from 136 to 138 degrees. After the hair has been

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sufficiently loosened, most of it is removed from the carcass by a scraping machine. The job of scraping and washing is completed by hand.

Dressing

The hog is again attached by its hind feet to a hook which hangs from the moving overhead trolley. It is then dressed; first, the inside portions such as the heart, lungs, and stomach, are removed; then the carcass is split into two sides. After the sides are trimmed and inspected, they are sent to the cooling room. In a typical modern plant, as for instance in one dressing 400 hogs per hour, 50 workmen are required to perform the many operations which take place between receiving pen and cooler, although the total time consumed by the trip is approximately 45 minutes.

Refrigeration

The "cooler" is a large refrigerated room in which the hogs are placed for from 24 to 48 hours. A constant temperature of about 33 degrees removes all of the body heat. The flesh of the animal in this way becomes firm enough to be readily cut and trimmed.

Pork Cutting

In the cutting of pork we see again the care with which the operations of the plant have been worked out. The "sides," or half carcasses, move along on a table past workmen, each of whom removes a single cut with just a slice or a stroke. Saws operated by electricity make the job relatively easy and speedy.

Here hams are being trimmed before going to a lower floor to be cured and then smoked.



The first cut removed is the ham. The shoulder is chopped off next. A specially shaped knife is used to separate the pork loin, extending along the center of the back, from the back fat on the surface. At last the whole animal is reduced to ham, shoulders, loins, bacon (obtained from the belly), head, feet, fat, bones, and all of the smaller parts. Those cuts which require no further treatment are shipped promptly to the trade on orders from the sales department. There is a great variety of cuts to meet the trade requirements of various sections of the United States as well as those of foreign countries.

The various cuts that are to be cured are taken to the trimming department where they are trimmed to the proper shape and carefully graded. The finest

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hams and bacon (those with the most evenly textured meat and with the correct proportion of fat and lean) are grouped together. The remaining hams and other cuts are separated in a similar manner, in accordance with their quality.

In many companies the meat is then branded to identify it as a company product of a certain grade.

Differences in Handling of Other Animals

Other kinds of meat animals are processed and slaughtered in a manner that is similar to, although not identical with, that employed in the case of hogs. One of the important exceptions is that veal, lamb, and mutton are not cut up to the same extent as hogs before going to the retailer.

The most important additional differences to be noted in the handling of cattle are these: In the slaughtering operation, cattle are usually first stunned by being struck with a special hammer at a particular spot in the forehead. This method has proved to be humane and practical. While the cattle are insensible to pain, they are hoisted by the hind legs and bled.

The scalding procedure is used only on hogs and not on cattle, calves, and lambs.

We should note too, that, at the end of all the handling operations, beef, veal, and lamb are delivered to the retail dealer either in sides or quarters (half sides) or in wholesale cuts (see charts on pages 201-205, 252, 253, 260, and 261).

THE FUNCTIONS OF MEAT PACKING

These are not the only differences between the handling of hogs and the handling of other meat animals. Since in most fundamental respects, however, the processes are the same, those differences that we have pointed out are the only ones we need note.

Refrigeration Throughout Process

Throughout the entire dressing process the meat is subject to very careful refrigeration. When carcasses go into the cooler at the very beginning, they are at a temperature of almost 100 degrees. If they were not immediately cooled, their condition would be almost ideal for the development of harmful microorganisms, which are microscopically small bodies that decompose meat, as well as other substances. These organisms are always present in air. The coolers are maintained at a temperature just above freezing, which prevents or slows up the development of the microorganisms.

So skilled have meat packers become in the use of refrigeration, that temperatures are controlled with great precision. This fact, plus moisture control, is the secret of successful refrigeration. Hence, when the

Placing company brand on quality product.



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dealer obtains his meat supplies from a plant of established reputation, he can be supplied at any time with properly dressed U. S. inspected and stamped meat to fit his exact requirements.

All this gives us a general idea of what happens in a modern meat packing plant. But what we have observed does not cover all of its activities.

First Function of Meat Packing Plant: Production of Fresh Meat

Our story so far has covered, in general, the principal function that the average person thinks of in connection with meat packing plants. To review: The first task of such a plant is, as it has always been, the job of transforming cattle, calves, hogs, and lambs into fresh beef, veal, pork, and lamb. This is called the fresh meat end of the business, and differs from its original procedure mainly in the improved methods which have been adopted and the introduction of the federal government inspection system. This system is in operation at all plants which do an interstate business, and assures the consumer that the meat carrying the "U. S. Inspected and Passed" stamp is from healthy animals which have passed the rigid inspection.

Second Function: Curing Meats

The second important function is the production of cured and smoked meats. It applies chiefly to such pork products as hams, bacon, and shoulders.

THE FUNCTIONS OF MEAT PACKING

The curing process is also used in making corned and dried beef, barreled beef and pork, and dry sausage. Its purpose is to help preserve the meat as well as to give it flavor, prepare it for smoking, and add variety to the diet. In the old days the results of curing were very uncertain. Under modern scientific control, however, cured meats are among the most appetizing and wholesome foods we have. The perfection of this method of preserving foods has been of great public benefit in that it has made it possible to carry over the surplus of certain seasons of the year to those months when the relative scarcity of livestock would otherwise create a shortage in the nation's meat supply.

Beyond these two major functions, a large meat packing plant has four other important ones.

Third Function: Manufactured Food Products

Job number three is concerned with the production of manufactured food products. These are products made by blending certain other materials with basic ingredients obtained from cattle, hogs, or lambs. Sausage and other ready-to-serve meats, for example, are manufactured in a great variety of forms from beef and pork to which have been added certain spices to improve the flavor. Meat loaves, head cheese, and many other specialties are also included in this group.

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The fats of the animal are also used in manufacturing a number of valuable food products.

One of the most important of these products is margarine, which might be classified in two types:

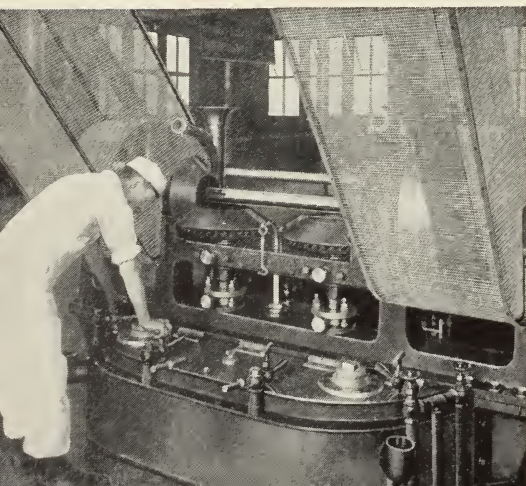
1. Animal and vegetable oil.
2. One hundred per cent vegetable oil.

Both kinds are churned in combination with pasteurized skimmed milk. Many pounds of animal and vegetable fats and oils are changed into convenient and palatable form through the manufacture of margarine. It has been used in this country for more than 50 years, and its annual per capita consumption is over two pounds as compared with an annual per capita consumption of butter of some 18 pounds.

Fourth Function: Edible By-products

The fourth function of the meat packing company is that of providing edible by-products from certain parts of the animal carcass. It is strange to consider such things as we are going to describe as “by-products,” since they are

Margarine emulsifier.



really among our most wholesome articles of food. But, when we stop to realize that the meat or the flesh of the animal is the primary object of meat packing, it is clear that every other product is obtained incidentally.

THE FUNCTIONS OF MEAT PACKING

From cattle come such products as the tongue, liver, heart, brain, tail, sweetbreads, kidneys, and many other articles which add variety to our meat dishes. From calves, hogs, and lambs we also get many edible parts which are separated from the main carcass.

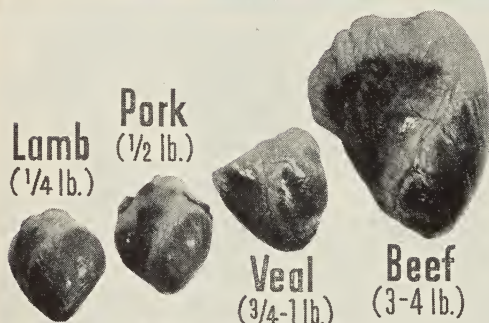
Hearts are sold in both the fresh and frozen state. When it is necessary to keep them for some time, they are packed in suitable containers and frozen at once.

Very few of us know that livers of cattle and hogs have come into widespread use only in the last few years. Their increased popularity is due to the discovery that they have great value in treating "anemia," a deficiency in the blood; one liver is just as good as another in this respect. Because livers are more perishable than many other meat products, they must be given careful attention. Usually they are frozen before shipment, unless they are to reach consumers in a very short time.

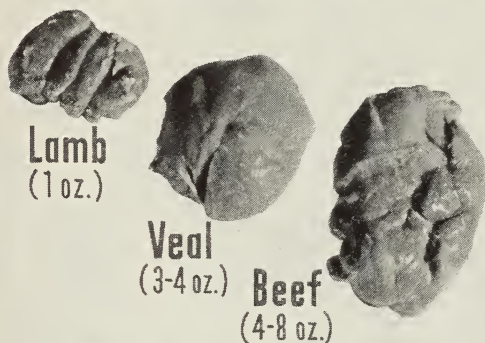
The brains of all meat animals are a popular dish in many sections of the country, with different localities preferring various kinds; that is, one section will prefer pork brains while another will ask for those from lambs or cattle.

Tripe is the wall of the stomach of cattle or hogs which is carefully cleaned and trimmed. There are really two parts, or two of the four stomachs in cattle which are used for tripe. Plain tripe comes from the

Edible By-products



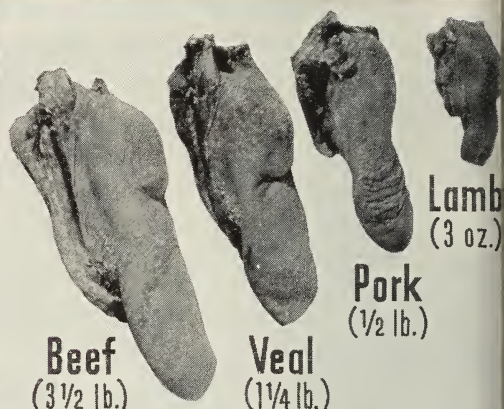
HEARTS



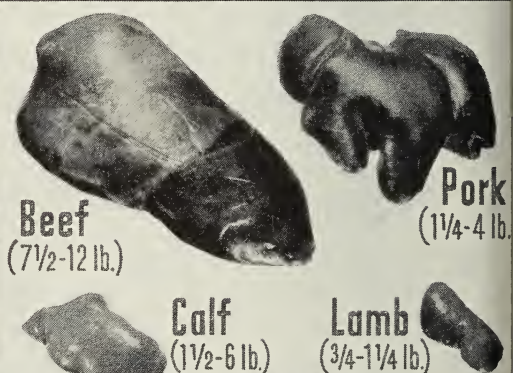
SWEETBREADS



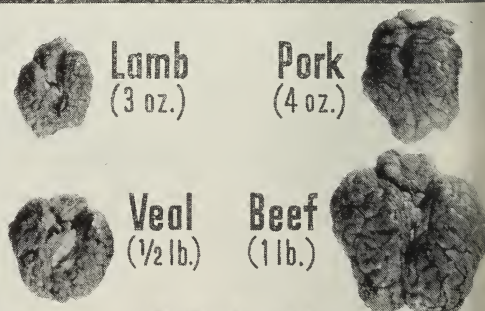
KIDNEYS



TONGUES



LIVERS



BRAINS

THE FUNCTIONS OF MEAT PACKING

first; honeycomb tripe, which looks like a small sponge or honeycomb, comes from the second, or small, stomach. Tripe is occasionally canned; the common practice is to pickle it. This is done by boiling it for a few hours, cooling it, placing it in a solution of sodium chloride and sodium nitrate brine, and finally packing it in vinegar.

Sweetbreads are considered a great delicacy, and are found on the menus of many well-known hotels, restaurants, and clubs. In calves, the sweetbread, which is also known as the thymus gland, consists of both the neck and heart breads.

The kidneys of cattle and lambs are in most cases left in the carcasses when they are sold. The kidneys of hogs are used in a few canned stews and other products.

Natural casings for many foods which we shall mention throughout the book are prepared from the intestines of meat animals. Some natural casings used in the manufacture of sausage are dried. The largest portion is packed and carried in salt until used.

Tails from dressed beef, known as ox tails, are sold in fresh or frozen form, and are also used in soups and canned products.

Pigs' knuckles are actually the upper portion of the feet of pigs. They are carefully trimmed, cleaned, and are sold fresh or may be boiled for a few hours and then packed in spiced vinegar.

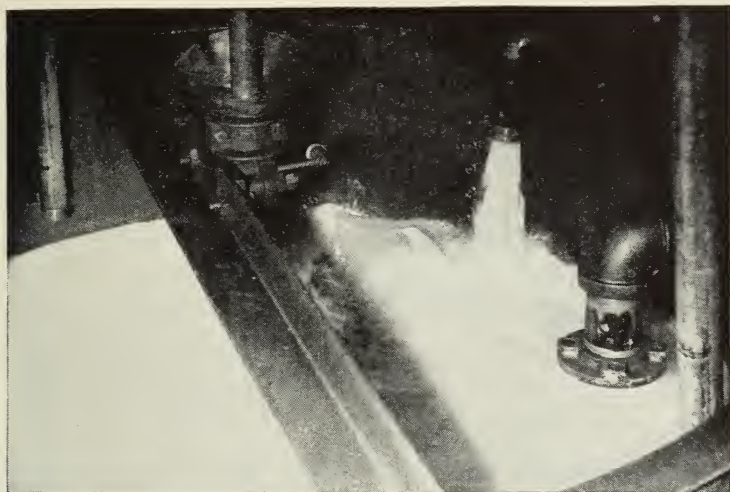
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But it is in pharmacy and in the field of medicine that many formerly wasted parts of the animal have come into new and valuable use. Most of these are gland secretions. Think for a moment of how much mankind owes to pepsin, a curative agent for dyspepsia; to insulin, a treatment for diabetes; to lecithin, an invaluable aid in the treatment of snake and insect bites. These substances and many others extracted from the glands of animals have in recent years given such remarkable service that their real worth cannot be measured in terms of money.

With the exception of the carcass, edible by-products, and hide, the largest single source of revenue from cattle, after dressing, is the fat. A very large part of the fat is used in some kind of edible form.

Lard is obtained by melting down the large quantities of external and internal hog fat to free it from tissues, and then bleaching it. The presence of stearine in the fat solidifies it, so that when the product is to be used as oil, this must be removed. In the hog the leaf and back fat contain almost no tissue and therefore, being of high quality, their treatment is simple. In addition to these relatively free fats, we have, in most of our animals, fat mixed with fibre and tissue. When these fats are to be removed, they undergo a cooking process in which the solid portions of meat are allowed to settle. The pure fat is then removed.

We may summarize by saying that the treatment of fats is a most exacting procedure if a good product is to be obtained. Fats decompose readily if not held



Liquid lard going into the bleaching kettle.

at a low temperature, especially before they are refined. But, by the proper treatment, many fats are saved for human consumption, thus increasing the value of the meat animals.

Fifth Function: Inedible By-products

Now turning to the inedible by-products, the production of which forms the fifth function of the industry, we may point out that it is through this channel that about 10 per cent of the weight of the live animal is sold. It is not many years back that much of this material was discarded because its usefulness was not realized.

Think of how many large industries depend upon these salvaged parts of the animal for their raw material. Consider how many millions of people make use of the innumerable articles so produced. There

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are hides, calfskins, and sheepskins made into leather, later into shoes and other articles; wool turned into clothing; and bones transformed into thousands of household and other items. There are blood and tankage, utilized in the preparation of animal feeds. Sheep intestines make strings for violins and tennis rackets. Greases are produced for a wide variety of needs. Inedible fats are employed in the making of soaps. Some bones and other animal remnants are used in the manufacture of glue.

It is estimated that, in all, over 140 articles, which are really by-products of meat packing, are now obtained from meat animals. One man has jokingly remarked that the packer uses all of the pig except the squeal; and he might have said something very similar of all the other meat animals.

Sixth Function: Dairy and Poultry Business

The sixth main function is an important one to many of the meat packing companies. The extent to which these companies are organized, both from the point of view of equipment and distributing facilities,

has made it possible for them to enter the field of the preparation and marketing of poultry, butter, eggs, and cheese. This dairy and poultry business is a flourishing trade as a result of the more

Pulling the wool from sheep pelts.



economical operation which the meat packers have succeeded in introducing. This service of the industry has enabled vast numbers of persons to purchase these products in any part of the country, and at any time of the year.



Modern dairy and poultry plant.

In producing the six types of products mentioned, the industry accomplishes its main purpose; but this is not its only task. These products must be distributed promptly and speedily to retail dealers all over the world before they can be put to their destined use. This is a task of tremendous magnitude, but it is performed efficiently and economically by means of a distribution system which challenges comparison with that of any other industry in the world.

Study Questions

1. Describe the main steps in the handling of hogs at a meat packing plant from their arrival until the meat is ready for shipment.
2. What differences are there in the slaughter of cattle and the slaughter of hogs?
3. Sum up the first two main functions of a meat packing plant.
4. What manufactured food products are made by the meat packers?

THE STORY OF MEAT

5. Name as many edible meat products as you know. Describe the preparation of lard.

6. Name three large industries that get all or part of their raw material from the meat packing industry.

7. What does the meat packer mean by the dairy and poultry business?

8. Why have the larger meat packers entered the dairy and poultry business?

Prime grade
steer.

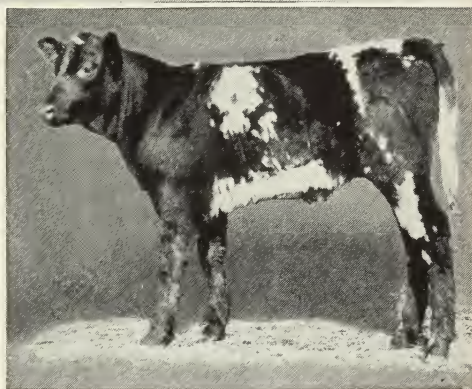


All photographs in this chapter from Bureau of Agricultural Economics, U. S. Department of Agriculture.

CHAPTER VI

Classes and Grades of Meat

Conformation, Finish,
Quality Are Important



Good grade veal calf.

WE know the saying about persons, "No two people are alike." When purchasing meat for sale in his store, the retailer finds an additional difficulty in the fact that this saying is just as true of animals. Only long experience, or thorough training, will make it possible for him to judge accurately the merits of the meat, on the sale of which his business will depend.

It is our job, here, to see whether we cannot simplify this problem. We shall probably find that, for



Prime grade heifer.

our purposes, the best procedure is to single out the most important factors by which we can measure the comparative worth of any portion of meat.

Classes and grades serve to classify the various kinds of meat on the basis of the desires of consumers. This classification is made to show: (a) proportion of edible parts to bone; (b) desirability of the various edible portions.

Meaning of "Class" and "Grade"

The very first things to be known about any meat we receive or handle are the "class" and "grade." The "class" indicates the sex condition of the animal from which the meat is obtained. The "grade" is a measure of the quality of the meat.

To be more specific, in determining class we must know such things as whether a male animal has been

castrated or not, or whether a female has been used for breeding purposes.

Grading is much more complicated. It involves an analysis

Choice grade bull.

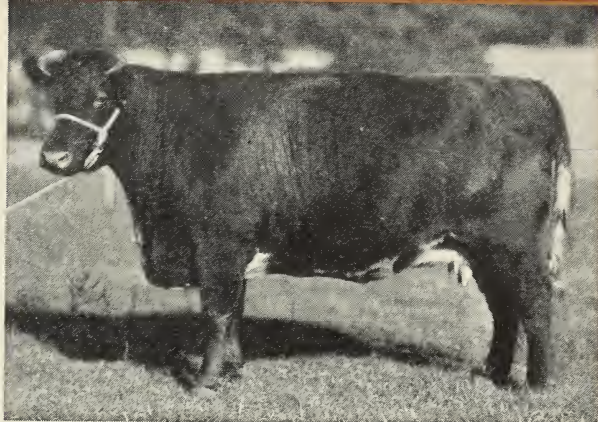


of the “form” or “conformation,” “finish,” and “quality.” The form or conformation refers to the shape or build of the animal; that is, the roundness, heaviness, length of the parts, and the proportion among the

different parts. Also, it indicates the proportion of the more desirable cuts to the less popular cuts of meat.

Finish indicates the amount, thickness, color, character, and distribution of fat on the carcass. It also refers to the desirability of the meat as a result of this fat. In other words, an animal that has been well fattened (known as “finished”) provides meat with a good proportion of fat and lean, making the meat tender and tasty.

Conformation and finish alone will not determine the grade. A third factor, known as quality, must be taken into consideration. It is difficult to define quality, but it indicates the color and texture of the meat. Such things as the smoothness and texture of the flesh; the quantity, texture, and distribution of the fat; the size and strength of bone,



Good grade cow.

Good grade stag.



THE STORY OF MEAT

muscle, and connective tissue must be considered. Long years of experience are required to enable any one to be a good judge of quality, because these factors cannot be measured in exact units.

Let us see how all of these methods of meat analysis apply to meat obtained from cattle.

Five Classes of Beef

Since sex characteristics do not have a noticeable effect until after the animal has reached sexual maturity, the question of class is not vital when considering calves, but is important for beef (the meat of cattle more than four or five months of age).

Beef carcasses are divided into five classes: steer, heifer, cow, bull, and stag.

Steer beef is obtained from a male castrated while still very young. The carcass may be identified by the presence of a considerable amount of fat in the "cod," or sac, from which the sex organs have been removed.

Heifer beef comes from a female which has never had a calf. One of the unmistakable signs of a heifer carcass is an appreciable quantity of udder fat. Another is the unusual softness and redness of the bones.

Cow beef is from a mature female which has borne a calf. The udder is generally removed from the carcass, or, when present, is much larger than that in a heifer. The cow carcass is usually more angular, the hips more prominent, the bones hard and white, and the fat, of which there may be a good deal, appears in bunches and may be yellow and oily in appearance.

CLASSES AND GRADES OF MEAT

Bull beef is obtained from a male which has reached full sexual maturity and has been allowed to retain sex characteristics. It has no cod fat, and the bone ring which surrounded the sex organs is much larger than in a steer carcass.

Stag beef is from a male castrated after it reached sexual maturity. This beef varies very widely in character, depending upon how early or late in life the castration was performed. If the castration was done at a comparatively early age, the carcass may resemble that of a steer, but if done after the animal has reached the mature age of three or four years, the carcass will probably resemble that of a bull.

Two Systems of Grading Beef

There are two separate systems of grading beef. One is known as the Institute grades, which are those of the American Meat Institute or, as frequently called, Packer grades; the other is the "U. S. Grades" specified by the Department of Agriculture in Washington, D. C.

Both standards follow the same general principles of classifying the beef on the basis of conformation, finish, and quality; one uses numbers, the other, names, to indicate the various grades. The important difference is in their use.

By far the largest percentage of all beef sold to retail dealers is on the basis of "Institute Grades" which show in more detail the differences in quality;

THE STORY OF MEAT

in other words, there is a total of 10 grades under this system as compared with seven grades according to the U. S. Government standards. The "Institute Grades" are applied to carcasses or to particular cuts of beef by packing company employees who are skilled in judging the various grades. Experienced graders employed by the Department of Agriculture classify the various kinds of meat as "U. S. Prime," "U. S. Choice," etc.

U. S. Grades are stamped on the meat and they can be seen by the consumer. The Institute grades, being used for identification by the meat packer and the retailer, are not seen by consumers. Instead, they are the basis for private brands applied to the various grades of meat by the meat packer.

Institute System

The Institute System was developed by a special beef grading committee of the American Meat Institute after many years' study, for the purpose of standardization. Thus, anyone knowing the method of classification, can easily identify the grade of meat in terms of the standard numbers used ("0," "1," "2," "3," "4," "5," "6," "7," "8," and "9").

In addition, it is desired to know what type of animal the meat is from, whether a steer, heifer, cow, etc. Therefore, many meat packers add to the grade number a special number or letter indicating the "class" of the animal. As an example, one large meat packing company places a "1," "2," "3," or

CLASSES AND GRADES OF MEAT

“4”* in front of the grade number to show that the meat is from a steer, heifer, cow, or bull. Thus, a cut of meat carrying the mark “20” would indicate that the “0” or highest grade of beef is from a heifer. “37” would indicate “7” grade meat from a cow. “43” would describe meat of “3” grade coming from a bull or a stag. This numbering system, however, is little understood by consumers because it is not intended to be their guide.

Another feature of this system is that there are 10 complete grades within each class. That is, there are 10 grades (“0” to “9”, inclusive) for steers, 10 for heifers, 10 for cows, and the same number for bulls and stags. The very highest grade of steer beef carries the “0” grade. The highest grade of heifer beef also qualifies as “0” and the same is true for other classes. It is important, therefore, to know the class of the animal, to determine the rank, or grade, of a particular cut of meat *within its class*. In other words, an “0” cow or “0” bull could not hope to have the same quality (as defined on Page 83) as an “0” steer. Knowing both the class and the grade within that class, it is comparatively simple for the retailer to select the kind of meat his trade requires.

Brand Names

In addition to the Institute Grades, practically all meat packers have identified their higher grades of meat with private brands so that the consumer, as

*Under this plan, the same number (“4”) applies to both bull and stag.

THE STORY OF MEAT

well as the retailer, can recognize the quality of a particular cut. These brands not only carry assurance that the meat has been carefully graded at the meat packing plant, but also indicate the careful preparation, refrigeration, and cleanliness of the product. Furthermore, a meat packer's reputation depends upon consistent standards of quality for all meats which carry his brand names.

U. S. Grades

The grading service provided by the Department of Agriculture is separate and distinct from Federal Inspection, which is described in Chapter VII. All meat sold in interstate or foreign commerce must carry the little purple stamp "U. S. Inspected and Passed." Thus, regardless of which system of grading is used, retailers and consumers are assured that meats from federally-inspected plants have passed a thorough inspection by government inspectors.

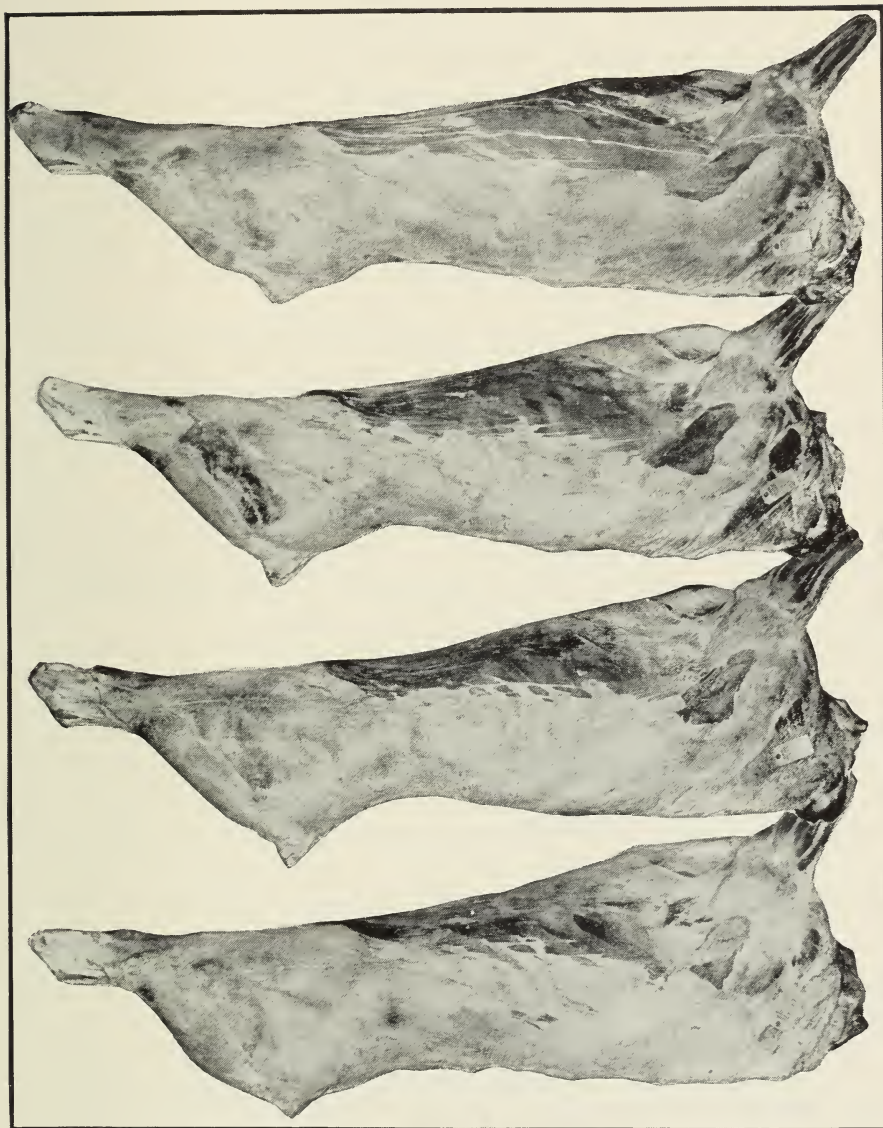
The U. S. grading service is now available in most large cities on an hourly fee basis. Dealers who desire the service may obtain it in any of these areas.

New U. S. Standards

During the summer of 1939, a change was made in the U. S. Standards of beef grading with respect to steers, heifers, and cows. Some of the names for particular grades were changed, and a new system was established in classifying the meat of the three classes. This new system was revised somewhat in 1941.

In accord with the new method, the beef is graded on the characteristics which determine its value to

CLASSES AND GRADES OF MEAT



Utility grade steer.

Commercial grade steer.

Good grade steer.

Choice grade steer.

THE STORY OF MEAT

the consumer, and no indication is made in the grading with respect to whether the animal is a steer, a heifer, or a cow. In other words, a grade of "U. S. Commercial" indicates the quality, conformation, and finish of a particular cut or carcass, which may be from any of these classes. Thus, cow beef is limited to five grades, because, on the basis of this classification, no cow could provide the quality of meat valued higher than "U. S. Good."

On the next page is a chart showing a comparison of the Institute and new U. S. Grades. In practice, the Institute grade would also be preceded by an additional figure, or letter, to indicate the class of animal.

In the following paragraphs, a brief description is given of the characteristics which go to make up the various grades—Institute and U. S. This description is for beef from steers and heifers only.

Institute 0 or U. S. Prime Grade

Only beef from the highest types of beef cattle is represented in this grade. Such beef (always from steers or heifers) is perfect in conformation, finish, and quality. It is generally from an animal less than three years of age. The bones are soft and red, which indicates a relatively young animal. The back and loin fat is from one-half to three-quarters of an inch thick. The "marbling," or lines of fat through the meat, is well distributed. The dressing yield is considerably higher than for other grades of beef, and this beef has a larger percentage of weight of the more desirable cuts. Not more than one-tenth of one

REVISED GRADING SYSTEM*

U.S.D.A. and American Meat Institute

Grade Standards for Steer, Heifer, and Cow Beef

Institute Grades Steers and Heifers	U.S.D.A. Grades All Classes	Institute Grades Cows
0	Prime	
1	Choice	
2		
3	Good	1
4	Commercial	2
5		3
6	Utility	4
7		5
8	Cutter	6
		7
9	Canner	8
		9

NOTE: This chart shows only the comparative grades for cattle. It does not indicate the number of animals falling into each grade.

NOTE: No cow beef qualifies for U.S.D.A. Grades "Prime" and "Choice."

*Revised as of July, 1941.

THE STORY OF MEAT

per cent of all beef is of this grade, and such beef comes mainly from steer carcasses.

Institute 1 and 2, or U. S. Choice Grade

Beef of this grade is very similar to Institute 0 or U. S. Prime in nearly every respect. There is only a slight deficiency in quality and in finish. There may also be an excess or waste of fat, or, on the other hand, there may be not quite enough fat for the meat to be graded prime. No. 1 and 2, or choice grade, come mainly from steer and heifer carcasses.

Institute 3, or U. S. Good Grade

In this grade of beef, as might be expected, is to be found a much larger number of carcasses than in either prime or choice. It is above the average in conformation, finish, and quality. Naturally, too, a wider range in age is to be found. Generally, the single fault is that of having too much or too little fat to fit into the higher grades. Carcasses graded No. 3, or good, constitute the only one of the higher grades to be found in fairly large quantities on the market throughout the year.

Institute 4 and 5, or U. S. Commercial Grade

This grade, as its name implies, is the beef most widely sold in the markets of the country. Like the average beef, it has fair conformation, finish, and quality. Indeed, the conformation may be found to be irregular, with certain portions of the meat better than others. There is not much fat covering, except over the back, and the fat is generally soft and yellow-

CLASSES AND GRADES OF MEAT



Good grade stag.

Good grade bull.

Cutter grade cow.

Good grade cow.

THE STORY OF MEAT

ish. There is little or no marbling in the flesh. This beef can be obtained at any time during the year, and is particularly plentiful in the summer and fall.

Institute 6 and 7, or U. S. Utility Grade

The bones of this grade are very angular and prominent. The amount of flesh as compared to amount of bone is relatively less than in higher grades. There is little exterior fat covering, and this is generally found on the loins and ribs. The fat has a very pronounced yellow color, and the flesh is soft and dark red. The bones are hard, white, and very sharp when broken. Very seldom is any lower grade of beef carcass sold in the retail market.

Institute 8, or U. S. Cutter Grade

The No. 8 or cutter grade is, again, comprised mainly of cows, but of very low conformation, finish, and quality. Only some cuts of the loins and ribs ever find their way into the fresh meat trade. The carcass is long, thin, and exceedingly angular; the flesh soft and a very dark red. Fat is conspicuous by its absence. A few of the cuts are boned and sold as boneless beef, or are used in sausage. Some of this beef is canned.

Institute 9, or U. S. Canner Grade

This is the lowest grade of beef to be found. Old cows, especially those that have had their day on the dairy farm, are generally found in this class. The flesh is thin, lean, dark, and soft—but entirely edible—and after the bones are removed, it is ground up

CLASSES AND GRADES OF MEAT

for use in certain types of sausage and canned products.

Veal

To complete our study of beef, we should now examine closely the classes and grades of meat obtained from the young bovine animal, or calf. However, because at time of slaughter these animals are young, sex differences that determine classes are not yet of any real importance. It will be sufficient, therefore, to disregard class entirely, and to consider only in a general way the question of grade. The U. S. Department of Agriculture recognizes four grades of veal: choice, good, commercial, and utility.

Again we deal with the three factors of conformation, finish, and quality.

Conformation of Veal

As for conformation, it is best if the veal carcass is broad and compact, with heavily meated legs, ribs, and loins. To put it another way, if the carcass is angular, bony, thin, and long, it will fall into the lower grades.

Finish of Veal

The finish, again, refers to the amount, thickness, color, and character of the meat as well as distribution of the small amount

Choice grade veal.



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of fat. Even in the best veal we find that there is little or no marbling (intermixture of fat through the lean). There may often be some fat along the muscle seams and connective tissues. Around the kidney and the pelvic regions, good veal will have a large supply of firm, brittle fat. The fat is often called "milk fat" or "baby fat," and is neither pure white nor very creamy, but rather somewhere in between.

Quality of Veal

The quality can be fairly readily distinguished. The higher grades of veal have a finely grained flesh that is light pink in color. The flesh is also smooth and firm. The bones should be red and soft.

We may add that choice veals are usually less than eight weeks of age. Often the weight of the carcass is the most important factor used in judging the grade of veal.

Lamb and Mutton

In the case of carcasses of sheep (the ovine species) there is a division into two main groups based on age—lamb and mutton. Since the animals mature when they are between 12 and 14 months old, the change in the character of the meat resulting from age, that is, the change from lamb to mutton, takes place at that time.

Classes of Lamb

Lambs are most important as far as the market is concerned. They furnish about 90 per cent of all the

CLASSES AND GRADES OF MEAT

meat from these animals. We shall therefore consider them first.

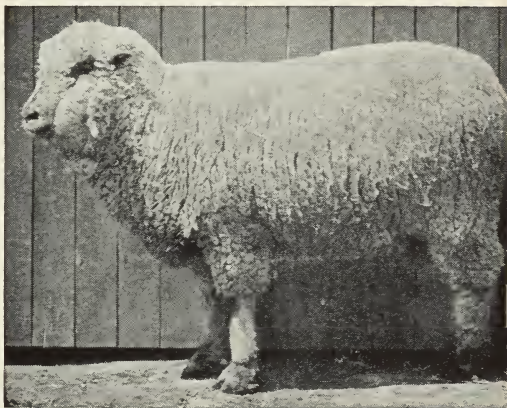
There are two general classes of lamb. The first class is usually termed "genuine spring lamb," and is a young lamb usually marketed at from three to six months of age. Because it is raised almost entirely on milk, it is called "milk lamb" in some markets. Most of these lambs weigh from 35 to 40 pounds dressed, although some weigh as low as 30 pounds and some as high as 50 pounds.

A very small number of young lambs are termed "hot house lambs," and cost considerably more than the others. They are produced under artificial conditions indoors, and are raised with great care. Because "hot house lambs" are of such high grade, so few in number, and seasonal, they may be considered a rarity.

The other class of lambs is usually referred to as "spring lambs," and constitutes the supply marketed in the fall and winter. These lambs run in age up to one year and most of them are grain fed.

Six Grades of Lamb

In dividing dressed lamb in accordance with conformation, finish, and quality, there are six grades:



Choice grade wether.



Choice grade ewe.

prime, choice, good, medium, common (or plain), and cull.

Prime or Grade A-1

This grade is, of course, practically ideal in conformation, finish, and quality.

The carcass is compact and blocky, has short, plump legs, and well-fleshed loins and flanks. The fat is plentiful, evenly distributed, white or slightly creamy, and firm but not brittle. The flesh is light pink in color, firm, fine-grained, and velvety. The bones are rather small, soft, and tinged with blood. This grade is scarce.

Note: In general, we may say that the extent to which lamb does or does not have the qualities described for the prime grade will determine in which lower grade the lamb is to be placed. In addition, there are a few special distinguishing features which we will mention briefly.

Choice or Grade 1

This is very similar to prime, but has a slight deficiency in one or more respects. Particularly over the hind legs and shoulders the fat covering is somewhat thinner than in prime.

Good or Grade 2

This has good conformation, finish, and quality, but may not be quite broad enough across the hips,

back, or shoulders. The legs are more tapering than in the higher grades.

Medium or Grade 3

The carcass is somewhat angular and rather narrow at the hips, back, and shoulders. The legs are moderately long and tapering. Interior fats are relatively scarce. The flesh tends to be soft and spongy and varies in color from light to dark pink.



Ram.

Common (Plain) or Grade 4

These carcasses are very angular, and all bones are prominent. The body is long and narrow. The backbone stands out, and the sides and flanks are thin and flabby. The flesh is soft, coarse, and has a dark pink or dark red color.

Cull or Grade 5

These carcasses are almost entirely without fat. The amount of meat as compared to the amount of bone is relatively less than in the other grades. The flesh is quite dark, soft, coarse, and fibrous. This meat is handled by retail dealers who have customers preferring lean meat without fat. Quite a few of these lambs are boned and the meat used for sausage material.

Mutton

Mutton comes from older animals which range from approximately 12 months to about six years.

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Classes of Mutton

The three important classes of mutton, based on sex condition, are wether, ewe, and buck.

A wether carcass is obtained from a mature male sheep that was castrated as a young lamb. It can be distinguished from ewe mutton by a fairly large supply of cod fat, by a more regular conformation, a higher percentage of flesh, and smaller forequarters in relation to hindquarters.

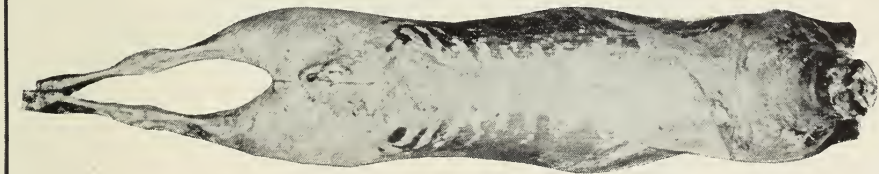
Ewe mutton comes from female sheep that were at least 20 months old at the time of slaughter, and usually have borne one or more lambs. They have large middles and small necks and shanks. Certain parts of the udder which remain help to identify this carcass.

Buck mutton is obtained from male sheep that have never been castrated and are over two years old at the time of slaughter. These carcasses are short and have large bones and coarse, dark flesh.

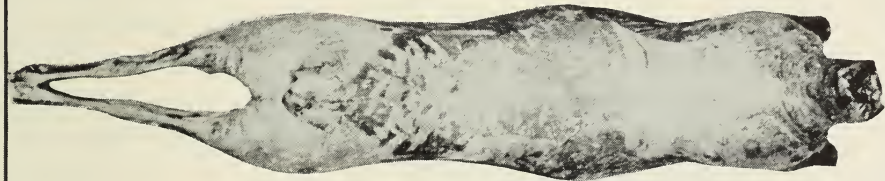
Grades of Mutton

The grades for mutton have the same names as those for lamb. To deal with this subject briefly, we need only point out that even in the higher grades of mature mutton there are some important differences from high-grade lamb.

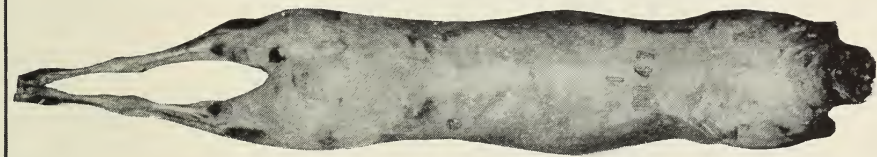
For example, the conformation of mature mutton is affected by the fact that the ribs have a much more developed bow shape than is the case for either lamb or yearling mutton. Also, the flesh of mutton is



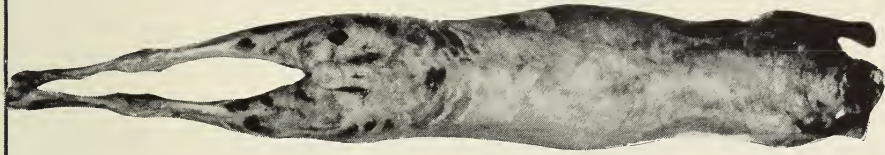
Prime grade lamb.



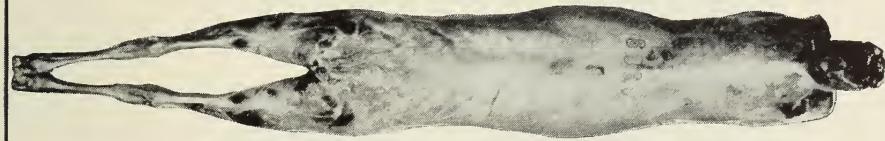
Choice grade lamb.



Good grade lamb.



Medium grade lamb.



Plain grade lamb.

THE STORY OF MEAT

firmer and has a deep dull-red color. As for the finish, mutton has a larger proportion of fat and is more firm than lamb.

Difference Between Lamb and Mutton Indicated by "Break Joint"

There is one very good way to tell the difference between lamb and mutton carcasses. In a lamb the foreleg can be broken at the "break joint" in such a way that four well-defined ridges will remain. (The ridges are not sharp, but, instead, are fairly smooth, moist, and red with blood.) In the case of mutton the break will have to be made at the fetlock, or round joint, which is just below the true break joint.

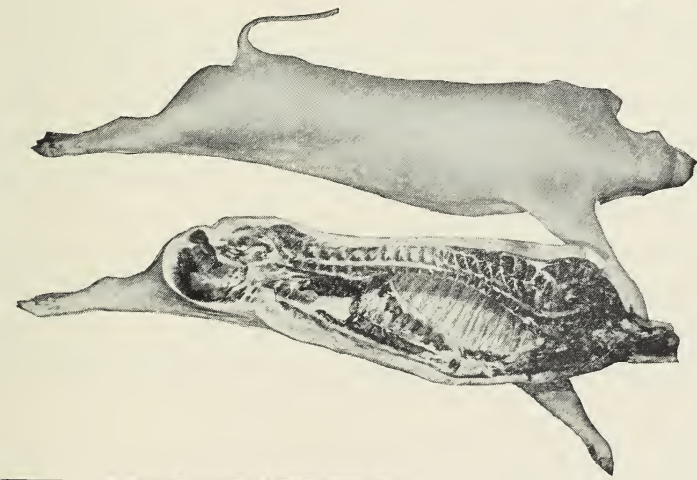
Sex Classification of Pork

Pork refers to any meat of swine or hogs. Most pork on the market comes from hogs of from seven to twelve months old. Here again, then, classes based on sex do not play an important part. Merely to mention them in passing, however, they are: barrows, or unsexed young males; gilts, or young females; sows, or mature females; boars, or mature uncastrated males; and stags.

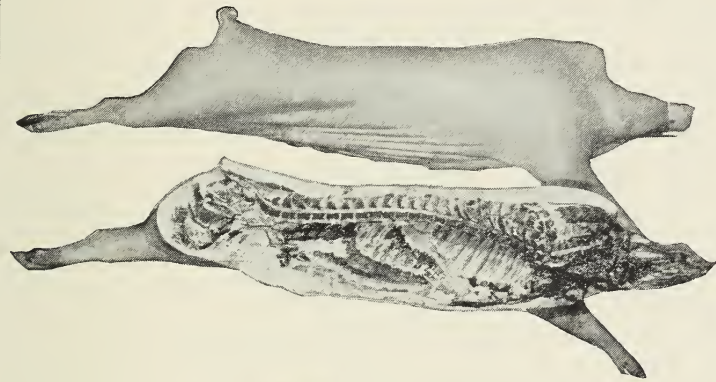
Classes of Pork Based on Use

The important market classes of pork carcasses are based upon the use to which the meat is to be put.

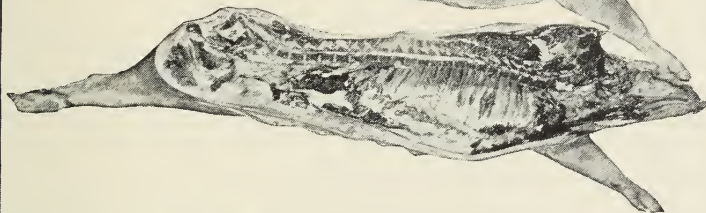
Butcher carcasses are the ones most often found in the retail trade of fresh pork, ham, and bacon. The



No. 1 grade hog carcass.



No. 2 grade hog carcass.



No. 3 grade hog carcass.

THE STORY OF MEAT

flesh is generally firm, well molded, and grayish pink in color. All fat is white, firm, and of fine quality. This carcass usually weighs between 100 and 300 pounds.

Bacon carcasses are longer and have deeper sides than those we have just described.

Packing carcasses consist of those that are coarse, rough, soft, or poorly finished.

Shipper carcasses receive their name from the fact that they are dressed "shipper style"; that is, with the head on, the fat untouched, and the backbone not split. Shippers are like light butcher carcasses, but are still lighter in weight and have less finish.

Roasting pig carcasses are fat, smooth, young pigs, with light-colored flesh and soft red bones. They are sold mainly to hotels and restaurants. The carcass weighs between 10 and 30 pounds.

Three Grades of Pork

In grading pork, only three grades are generally used, and are simply numbered one, two, and three.

It must be remembered that relatively few whole carcasses are used in the retail trade. Instead, separate pork cuts are obtained from the meat packer and other wholesaler.

We wish to repeat the word of caution with which this chapter opened. Grading can be mastered only after extensive experience and training. We have here attempted to indicate only the most significant

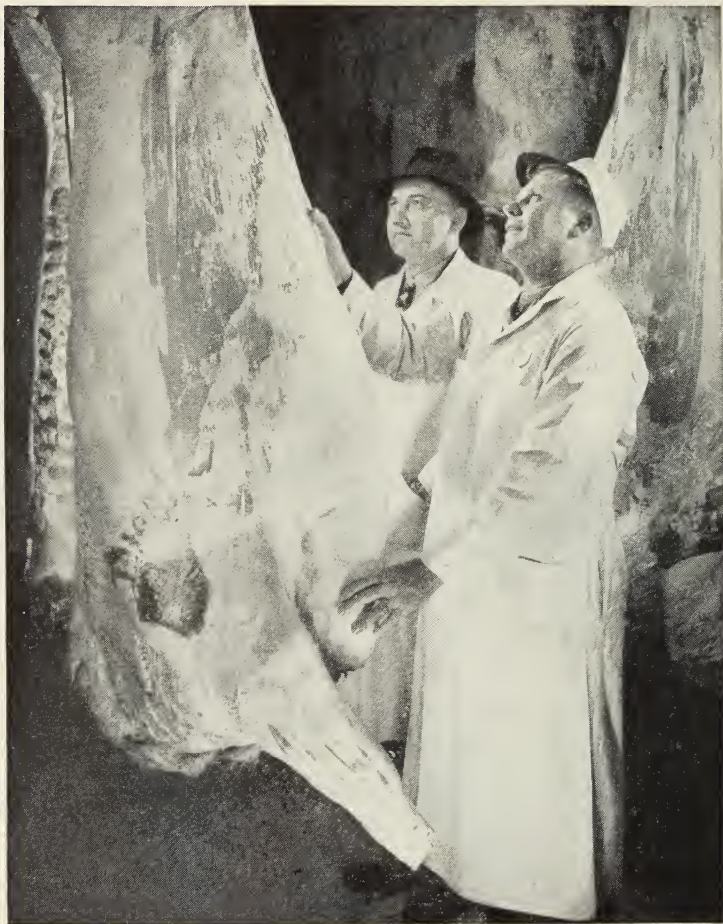
CLASSES AND GRADES OF MEAT

guides which may serve as a basis for further practical study and investigation.

Study Questions

1. What special difficulty is there in determining the grade of meat?
2. What determines the class of meat? The grade?
3. Give the meaning of conformation, finish, quality.
4. Name the classes of beef. Mention several identifying characteristics of each.
5. Explain differences in two systems of grading beef.
6. List the grades of beef, with several features of each.
7. What is veal? What are the characteristics of the best grade of veal?
8. What are the classes and grades of lamb? Of mutton?
9. Describe the conformation, finish, and quality of the best grades of lamb.
10. Why are few whole pork carcasses found in the retail trade?

THE STORY OF MEAT



Final inspection of dressed beef by U. S. Government inspectors.

CHAPTER VII

Meat Inspection

Healthfulness of Meat
Is Checked Four Times

“LOOK for the ‘little purple stamp,’ ‘U. S. Inspected and Passed.’ ”

Every retail dealer interested in building up a steady trade has come to realize the value of this important federal meat inspection service. Because of it, his customers purchase meat at his store with the certainty that they are obtaining food from animals that have passed a thorough inspection by experts.

The Extent of Federal Inspection

It is true that not all meat found on the market has received federal inspection. Only meat coming from establishments in which it is prepared for transportation or sale in interstate or foreign commerce is subject to this procedure. Fortunately, this includes about two-

Healthfulness guaranteed.





Side of beef showing U. S. Government inspection stamps.
(The figure "3" indicates the establishment where the animal was dressed.)

MEAT INSPECTION

thirds of all meat produced in this country. The attempt has been made to place other commercially sold meats under state or city supervision.

Federal meat inspection is conducted by the Bureau of Animal Industry under the direction of the Secretary of Agriculture. All inspectors are required to pass a difficult civil service examination. Many of them are graduates of accredited veterinary colleges. In addition, they work for three years as assistants to experienced men in the department before the government allows them to do independent work.

The regulations in accordance with which the inspection is performed are based upon the federal meat-inspection law of 1906, and subsequent acts. "They embody the recommendations of scientists and hygienists outside the Department of Agriculture, as well as the judgment and experience of administrative officials and workers in the service. The regulations are available in printed form, and anyone may judge for himself as to their fairness to all interests concerned as well as their thoroughness in covering details of the work."

Sanitation in Meat Packing Plants

The subject of sanitation is treated with great care. In federally inspected plants all walls, floors, and equipment must be so built that thorough cleaning is possible. There must be a sufficient quantity of pure water at all times. The construction of the plant must provide for proper drainage and other plumbing.

THE STORY OF MEAT

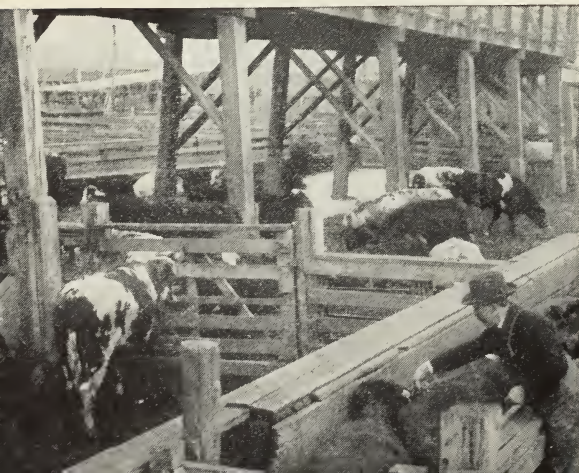
Adequate washing, disinfecting, and cleaning facilities are necessary. All operations in the plant, tools, and other equipment, as well as the clothing and work of the employes, are checked carefully to assure sanitary procedures.

Practically all of the meat animals which come to market are healthy and wholesome as food. However, a few of these animals may have certain diseases which might render them unfit for use as food. To the layman this occasional unfit condition in an animal carcass is not always apparent; it requires training and experience to distinguish unsound from sound meat. That is why the federal government has felt it wise to have the meat examined in greatest detail by trained men, who have full authority to order that a carcass of meat, even though only suspicious, be retained for further examination and, if necessary, to order that it be completely destroyed.

Four Separate Inspections

There are four separate inspections which each

Live animal ("ante-mortem") inspection.



meat animal must pass before it gets the stamp of approval. One of these is known as the "ante-mortem" (before death), and the other three are "post-mortem"

MEAT INSPECTION

(after slaughter). The first inspection of the animals is made in the stock yards pens. They are examined carefully, and if one of them appears to be abnormal in any way it is specially tagged "U. S. Suspect" for critical examination after slaughter. When an ante-mortem examination shows a serious abnormal condition or a disease which, in accordance with the strict government regulations, makes it unfit for food, the tag "U. S. Condemned" is attached, the animal is separated from the approved livestock, and the meat is not used for food.

After the animals have passed the ante-mortem inspection, they are dressed and immediately given three separate examinations. First the head and its glands, then the viscera (internal organs) are carefully inspected, and, finally, a general examination is made of the entire carcass. After all of these tests have been made and proved satisfactory, the stamp "U. S. Inspected and Passed" is placed on the meat. The small percentage of carcasses or parts which is found to be "unsound," unhealthful, or unwholesome, is marked "U. S. Condemned" and is not used for food purposes.

Relatively Few Animals Diseased

We cannot overemphasize the fact that, as a result of careful breeding and raising, the vast majority of animals are today free of disease. But even the very small percentage that does not pass inspection certainly justifies this precaution. It is a great step forward when the consumer can be assured that the job of examination, performed by trained men, is thor-

THE STORY OF MEAT

ough enough to justify complete confidence in the meat after it is passed.

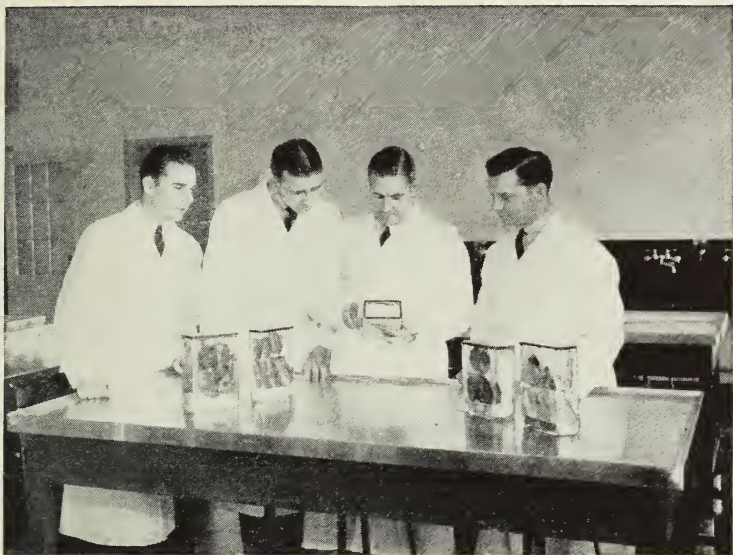
Disposal of Condemned Carcasses

What happens to the condemned carcasses? How do regulations assure their being eliminated from the food trade? All carcasses and parts condemned by the B. A. I. are either destroyed or treated so that they cannot be used as food. After this special treatment, the grease and tannage produced may be used in the manufacture of inedible products.

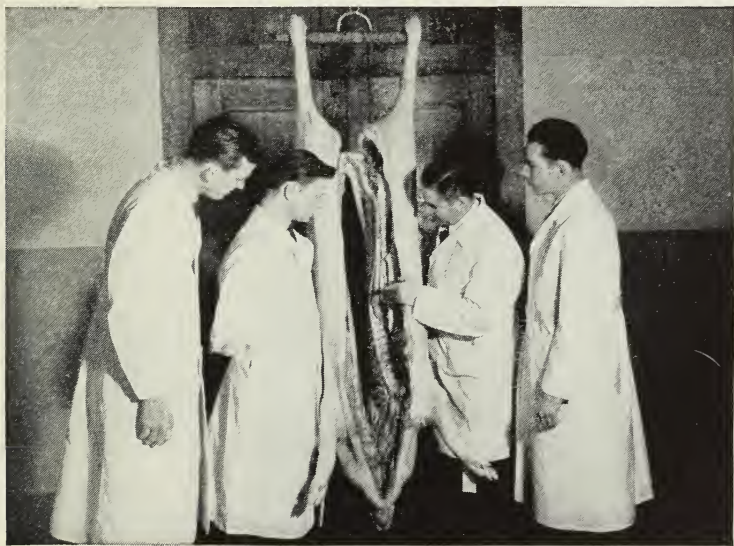
Similar Inspection of Other Meat Products

Meat food products prepared under B. A. I. inspection are given just as thorough an examination as the meat carcasses sent into the market. Elaborate chemical tests are made of a great variety of such products put up in packages and cans. Lard, margarine, sausage, cured meats, and canned meats, among others, are inspected to assure the use of wholesome ingredients. Only certain materials such as salt, sugar, saltpeter, and vinegar are permitted to be used in curing and preserving the meat.

The careful inspection of these meat products is as important as that of the animal carcasses. It is extremely difficult for a consumer—or even a dealer—to judge whether a piece of sausage having a fine, bright color is made of good or very poor ingredients, or what percentage of cereal and approved coloring it contains.



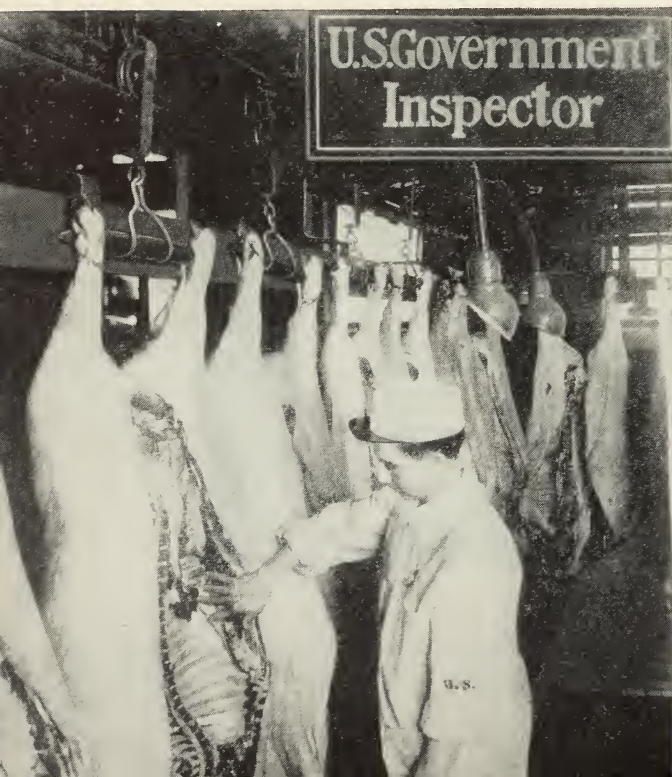
Two scenes of students receiving instruction
in the New York Veterinary College.



THE STORY OF MEAT

All meat, meat products, and packaged and canned goods, which have been inspected and passed by the B. A. I., bear the inspection legend, brand, or label indicating this approval. Retailers occasionally find one peculiar reaction to this label; customers sometimes ask that the indelible purple brand be cut off the meat they purchase. They need have no fear; a vegetable compound that is perfectly harmless is used as the stamping ink.

The fact remains, however, that federal inspection is not, and cannot be, enforced, under present laws, on meat and meat products which are not sold through interstate commerce. About one-third of all meat produced in the United States is not federally inspected.



Making final inspection of dressed hogs which hang on moving conveyor in meat packing plant.

MEAT INSPECTION

Inspection by Other Agencies

This third of the meat supply represents farm and local slaughter and must be consumed in the states where it is produced. Some municipalities and states have local inspection laws which provide inspection for part of this meat. Practically all farm slaughter, however, is uninspected.

In some such places the local inspection seems to be adequate, but too often it is not. Local butchers and farmers cannot substitute for it effectively, because they cannot be expected to recognize all diseased conditions. Where local inspection does exist, it often is confined to fresh meat and does not cover canned and cured meats.

Federal Bureau Also Assists Other Agencies

The federal government is much interested in state and municipal inspection, and renders assistance, wherever requested, in an advisory capacity. This supplements the federal work and increases the protection afforded the public.

Many of the larger cities have a system similar to that of the federal government. They often use the same method of stamping the meat, except that, while the federal stamp is round, theirs may have a diamond, octagonal, or other shape.

Careful Checking of Inspection Agencies

Our federal government inspection service is recognized as the best in the world. The men doing this work are well qualified by training and experience, and the entire organization is carefully supervised.

THE STORY OF MEAT

Furthermore, the work has become so specialized that different men may be assigned to checking at separate points, as, for example, the bacteriological laboratory, the curing department, or the plant construction.

Important breaches of federal law, such as attempted bribery of inspectors, or counterfeiting of labels on meat products, are serious crimes punishable by large fines and imprisonment.

Transportation of Meat Products Supervised

The actual transportation of all these meats and meat products is checked by federal agents. Certificates must be given the carrier by the shipper, declaring the product intended for interstate shipment is U. S. Inspected and Passed.

Benefits to All From Federal Inspection

Federal inspection has proved a national blessing. That this entire service is being more and more appreciated by the farmer, meat packer, retailer, and consumer is evidenced by the fact that more and more service is being demanded locally. The system is now recognized as one of the most efficient known. The meat packer whose plant has federal inspection stands to gain because the consuming public is given complete confidence in his product. The farmer has been taught much about the prevention and eradication of livestock diseases through the federal inspection service. The retailer finds that the confidence of his customers tends to increase meat consumption

MEAT INSPECTION

and makes for a steady trade. The consumer is freed from the danger of infection and disease from this cause.

Double Check

Indeed, the consumer's protection goes even beyond the government inspection. Meat packing establishments which are large enough maintain their own staffs of experts, who see to it that standards of quality are maintained. Thus, a double check is kept on the wholesomeness of these firms' meats.

Study Questions

1. For what establishments is federal meat inspection compulsory? Who else may obtain such inspection?

2. What federal agency is in charge of meat inspection? How is the staff selected?

3. On what federal law are the regulations governing meat inspection based?

4. What are the purposes of the ante-mortem and post-mortem inspections? How are these inspections carried out?

The little purple stamp assures consumers that the meat they purchase is from animals which have passed the rigid government inspection.



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5. If evidence of disease is found in an animal, what is done with the meat?

6. What kinds of products of the meat packing industry must be branded or labeled?

7. What inspection other than that by the federal government is ever given to meat or meat products?

8. What precautions are taken to assure the proper functioning of the federal system of meat inspection?

9. How do the farmer, meat packer, retailer, and consumer benefit from federal meat inspection?

CHAPTER VIII

The Preservation of Meat

Refrigeration,
Curing, Freezing

EVERYTHING that we have learned so far must have made clear that one of the central problems in the meat industry is that of keeping meat over a period of time in a condition suitable for its use as food.

Years ago, the only way this could be accomplished was by packing, or pickling, selected portions of meat. Today, the methods are far more numerous and more successful. They include refrigeration and canning, as well as drying, salting, pickling, and other methods of curing.

In localities where facilities for refrigeration are not readily obtainable, the use of salt or other substances to preserve meat is still of considerable importance. This is true of farms and certain isolated areas, as well as for long sea voyages and in the foreign trade.

Our study of the history of the meat packing industry has indicated that the biggest single step forward was achieved by the introduction of refrigeration. Through its use and development it became possible to supply America's vast population with a constant and adequate fresh meat supply.



Old-time method of dressing hogs on the farm.

THE PRESERVATION OF MEAT

Refrigeration Controls Deterioration

The first warning we get that meat, at ordinary temperatures, is deteriorating, is a change in the appearance of the outer surface, accompanied by a characteristic odor. On close examination we find that all of the meat does not deteriorate equally, but rather, that the change takes place most rapidly along the streaks of connective tissue or any opening in the muscle fiber.

As we mentioned very briefly in a previous chapter, scientists have discovered that the decay of any substance is caused by minute organisms or bacteria which are not visible to the naked eye. Comparatively few species are the causes of disease. Most of them merely bring about chemical changes, some of which are desirable and others of which, particularly if continued too long, are very undesirable. Thus, if the growth is not checked, the meat cannot be preserved.

Fortunately, due to the work done by such men as Pasteur, Tyndal, Koch, and many later scientists, we have learned a great deal about the nature of these minute organisms and the conditions under which they develop, and so are able to control their harmful action to a considerable extent.

Bacteria become relatively inactive at low temperatures, and entirely powerless in substances that are frozen. Fresh foods of all kinds can therefore be kept sweet and wholesome for longer periods if properly chilled. For that reason there are in use the



Chilled sides of beef in refrigerated room of a large meat packing company.

chilling rooms and freezers of the meat packer, the refrigerated cars and trucks for transportation, and the common household icebox or refrigerator.

Moisture Control Affects Success of Refrigeration

The meat packer has learned that the humidity, or amount of moisture, as well as the temperature of the cold storage room, determines the extent of the development of microorganisms in meat at above freezing temperatures. If the humidity is lowered somewhat, the meat itself will become partially dehydrated; that is, will lose some moisture, thus inter-

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fering with the growth of bacteria and other organisms such as molds. Too much drying is inadvisable since it results in shrinking and decreases the appearance and value of the meat.

On the other hand, too much moisture in the room stimulates the development of bacteria and molds. Besides this, the color of the flesh changes and strong odors are produced.

Chilled Meat

To chill meat, the temperature is brought to slightly above freezing and kept at that temperature until the meat is ready to be sold. Chilling of beef may be continued for a period of two to six weeks. Indeed this helps to “age” or “tender” the meat and so produces flavors that many customers desire. Of course, continuing this process too long results in deterioration and decay.

Where the molds have not penetrated beneath the surface, it is possible to clean them off or to cut them off with a knife.

At least one other thing worth knowing about molds is that they may come from handling and even from the air in a place where mold spores exist. That is why it is necessary to clean frequently all benches, walls, ceilings, floors, and other parts of a room in which meat is kept. Spraying with the right kind of chemical solution is also required.

Refrigeration and absolute cleanliness have proved the best means of checking the growth of micro-

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organisms in fresh meat. The use of chemical preservatives is, of course, prohibited by law.

Freezing Is Effective Over Longer Period

As we can see, the one drawback to the method of merely chilling meat is that its effectiveness is limited to a period of six weeks at most. For this reason a number of relatively new processes—effective for longer term preservation—have been developed for freezing meat. Fundamentally, these consist of lowering the temperature very rapidly to about 35 degrees below freezing.

Only a small percentage of all meat produced in this country is frozen. Frozen meats are frequently held from three to nine months. They are mostly kept for use in processed meat products, rather than as substitutes for the corresponding fresh meats, even though freezing has little or no unfavorable effect on nutritional value and palatability.

Curing Is Most “Permanent” Method of Preservation

An important means of preserving, or controlling bacterial action in meat is that of curing. Some forms of this process have been in use for a great many years. When the disadvantage of too much moisture was first noticed, portions of beef were dried after they had been treated with such substances as salt and sugar. In this way it was also discovered that if, instead of merely rubbing the curing ingredients on

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the meat, a "pickle" of the right strength was used to soak the beef, a very satisfactory product, "corned" beef, would result.

Similar processes gave us our first cured pork in dry form and "sweet-pickled" pork prepared in a solution.

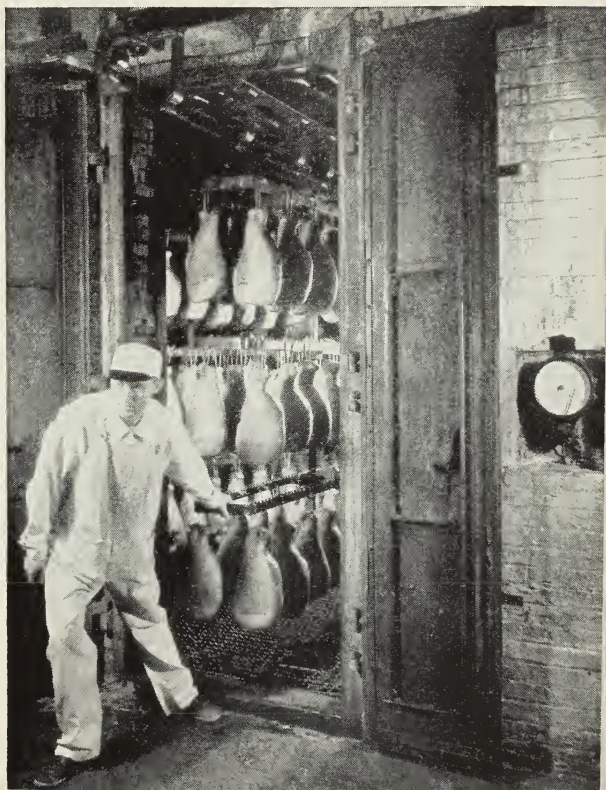
Smoking Often Improves Cured Products

In most of these cases—with the possible exception of corned beef—the product after curing was found to have improved appearance, flavor, and sometimes better keeping qualities, if submitted to the action of cool smoke. Hard woods, such as hickory or maple, or hardwood sawdust is used to produce the right kind of smoke.

Cured Pork Most Popular

The meat cured in largest amount in this country is pork. The principal reason for this is the palatable flavor resulting from the curing of pork products. It is true that beef is occasionally "corned" for variety

Hams being removed from a modern smoke-oven.



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and sometimes for the purpose of putting to use such cuts as the brisket and plate, which are relatively less popular as fresh meat; but it is not a large factor in cured meats. Lamb and veal are a still smaller item among cured meats.

Curing Agents

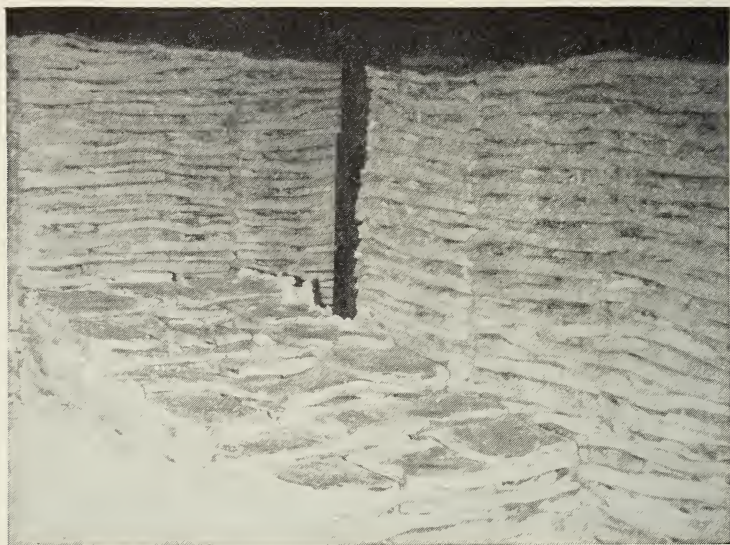
So far as the curing agents are concerned, perhaps the only one absolutely necessary is salt. If, however, this is used alone, either dry or as a pickling solution, the meat product is hard, salty, and unattractive. Therefore sugar is used to counteract the action of the salt, softening the product and preventing it from becoming tough. The sweetness of the sugar is in itself an added advantage. Where other substances are added, it is mainly in order to preserve the natural color of the meat, which would otherwise be completely changed by the salt.

Two interesting things to note in passing are that barreled pork is cured in pickle which does not contain sugar; and that a curing process is also applied to meats used in all kinds of sausage except fresh pork sausage.

The dry-salt method of curing is applied to some meats intended for export, and to backs and sides of pork, some shoulders, and other pork cuts intended mostly for use in the South. The cuts are piled closely in layers, after being rubbed thoroughly with salt. The piles, which are several feet high, are overhauled



Smoking meats in early colonial days.



Dry salt bellies (pork) in the curing room.

at intervals and the pieces resalted. They are piled with the concave side up so as to retain any liquid which forms.

In sweet-pickle curing, the cuts to be cured are placed in vats, kept scrupulously clean, and covered with the pickling solution. The materials are weighed with great exactness in order that the pickle may always be of uniform strength, and the amount used in each vat is regulated accurately in accordance with the number of pounds of meat to be cured. Since the process requires from thirty to ninety days for completion, depending on size and kind, the meat in the vats is overhauled at regular intervals, and carefully inspected.

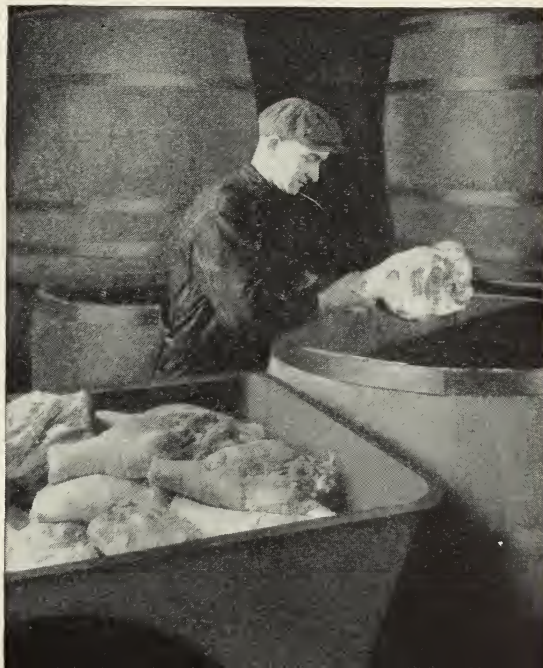
THE PRESERVATION OF MEAT

Scientific Procedure in Modern Curing

The research laboratories of the meat packing companies have played a very important part in changing the curing of meat from a hit-and-miss affair to one in which scientific care and accuracy are exercised. Years ago, little consideration was given to such things as the exact composition of the pickling solution, the purity of the salt and sugar, the temperature of the cure, or even the cleanliness of utensils. From the laboratories have come precise formulas for the curing mixtures, new techniques, and even suggestions for the exact type of wood to use for smoking. In addition to the development of exact standards and new methods of manufacture, most of these research laboratories follow through on these standards to make sure that the food products are of uniformly high quality.

The retail dealer soon realizes that few meats that he can display are more tempting to the customer than these appealing cured products. They add a satisfying variety to the menu.

Hams being placed in vats for curing.



THE STORY OF MEAT

Study Questions

1. What methods of meat preservation were employed in the earlier periods of our country's history?
2. What was the most important development in solving the problem of meat preservation? Why?
3. Why does chilling meat help to preserve it? How long is this process effective?
4. What are the objections to much moisture or dryness during refrigeration?
5. Are bacteria and other microorganisms that appear on properly inspected meat harmful?
6. What precautions can be taken in a retail store against the development of microorganisms on meat?
7. How is meat frozen? For how long a time is this treatment generally effective?
8. Does curing meat have any advantages? Why?
9. Why are some cured meats smoked?
10. Why are pork cuts most commonly used in curing?
11. Describe the dry-salt method of curing; also, the sweet-pickle method.



Sausage in refrigerated room, ready for shipment.

CHAPTER IX

The Manufacture of Sausage and Ready-to-serve Meats

Domestic Sausage, Dry Sausage,
Sausage Specialties

IT was probably no accident that the writer, Charles Lamb, in his humorous story about the discovery of roast pig, chose a Chinese boy as the hero; for the Chinese nation has almost one hundred million pigs, or about one and a half times as many as we have.

While it would be difficult to say in what part of the world pigs and other meat animals were first used to make sausage, we have definite evidence that the Chinese were eating sausages hundreds of years before the beginning of Christianity. Whatever the case may be, we do know that the idea of sausage making was

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introduced into almost every European country many centuries ago and very quickly became popular.

Wide Variety of Sausage Products

As the American population grew, the many different nationalities that arrived brought with them their own particular sausage preferences, based upon the method of making sausage products which had been developed in their own countries. The result is that a great variety of these products, perhaps as many as two thousand, is obtainable in this country today. Our large American meat packers alone produce in their sausage departments as many as one hundred fifty to two hundred different kinds. This is particularly true of those meat packers who have branch houses situated in sections of the country in which there are many different nationalities.

Sausage Is a Blend of Various Ingredients

Sausage is called a "manufactured" food product because it is made by combining in various ways a number of different raw materials. The materials consist chiefly of beef and pork from the cutting rooms, and certain cuts which are separated from carcasses on the dressing floors before they are sent to the coolers in dressed form. Usually, only beef, pork, and veal are used in sausages. Good bull beef is considered especially desirable because it provides lean, nutritious meat which when chopped fine becomes tender and appetizing.

In addition, spices are used to give the desired flavor and, in some cases, cereals—such as rice flour,



Crowds at the New York World's Fair, 1939, ate frankfurts by the million, and watched them made by the thousand in this exhibit.

corn flour, or potato flour—are used to give the desired consistency to the product and also to lower the cost. Sausage manufactured in plants under U. S. Government supervision contains either no cereal or only up to $3\frac{1}{2}\%$ of the weight of finished product. If it has more than this prescribed amount of cereal, it must be labeled “imitation.” A few special sausage products, such as chili con carne, scrapple, and souse (which must be labeled with these names), can contain cereal in excess of $3\frac{1}{2}\%$ of the total weight.

Care Required in Preparation

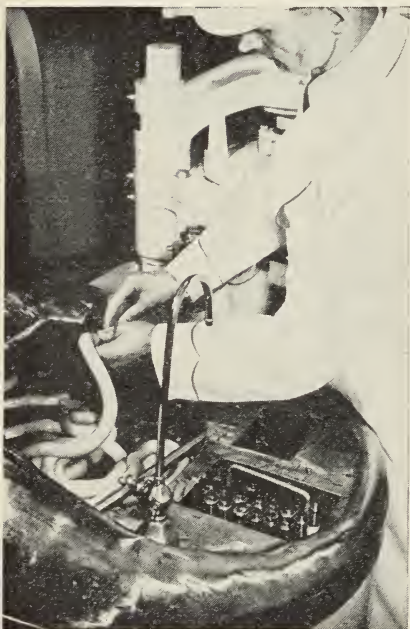
These materials are prepared and combined by a series of manufacturing processes which require a high degree of skill to produce good results. Ground meat, if not properly handled, is a favorable breeding ground for microorganisms. Every possible precaution must be taken to avoid this danger. As for the

THE STORY OF MEAT

skill required in preparation, many butchers have found out only too often how easy it is to spoil the mixture or the seasoning.

Sausage a Quality Product

In the past, some sausage may have been made from cheap odds and ends of meat, prepared very crudely, and contained much seasoning mainly to disguise the taste resulting from such material. But, thanks to the care and accuracy of modern methods, with assurance of quality through identifiable brands, this type of product has been almost entirely eliminated. Sausages are now recognized as "among the aristocrats of modern foods," and any doubt we may have about this can easily be removed by consulting the menu cards of high-class hotels and restaurants. What is more appetizing in warm weather, for example, than a dish of "assorted cold cuts," a great many of which belong in the sausage group?



Close-up of filling the frankfurts with delicately spiced meat.

Three Classes of Sausage

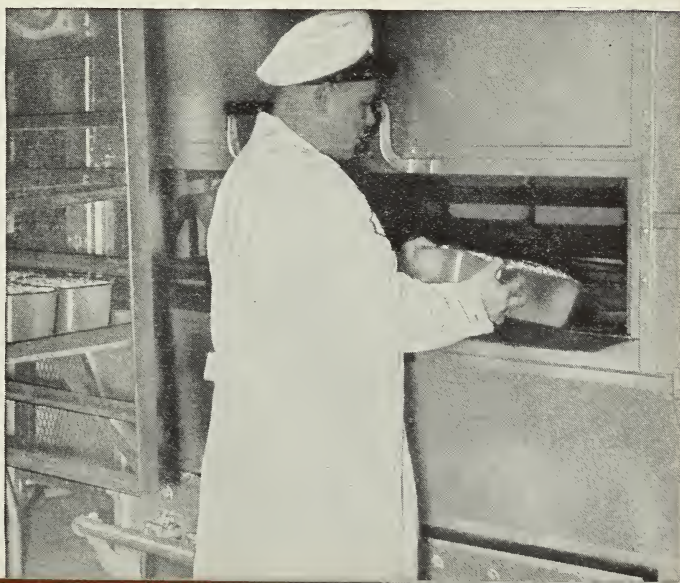
The average large meat packing plant produces three main classes of sausage; namely, domestic sausage, dry sausage, and sausage specialties.

MANUFACTURE OF SAUSAGE

As the name of the first class implies, it is used largely to satisfy the domestic demand. In it are included the numerous varieties of pure pork sausage so popular on the breakfast menu, and our old friends, the frankfurt and bologna. In the manufacture of domestic sausage, the meats are sometimes cured before mixing, or the finished product may be cured even after being placed in casings. A large number of these products are also smoked in order to improve the flavor and keeping qualities. Very often the sausage which has been smoked is also cooked to insure its wholesomeness.

Domestic sausage is sold "fresh" or freshly smoked and cooked, and usually appears soft and moist to the touch. The "fresh" pork (or fresh-mixed) sausage requires constant refrigeration and must be cooked by the consumer.

These meat loaves are being placed in the oven for baking after the meat has been finely chopped and delicately seasoned.



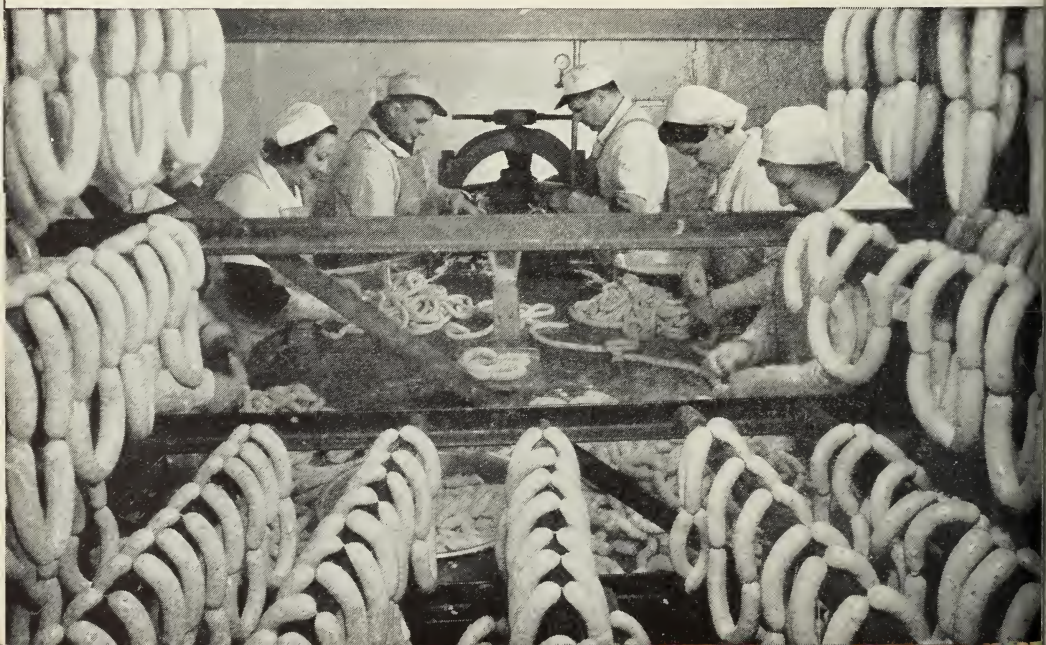
THE STORY OF MEAT

Dry Sausage

Dry sausage, often called "summer sausage" because it was formerly sold mainly during the summer months, is, for the most part, eaten without cooking, as it has been thoroughly processed, in accordance with government standards, by curing, refrigeration, and drying. It contains little moisture and is firm to the touch. In the manufacture of dry sausage, selected cuts of high-grade pork and beef are chopped by a special machine, mixed with other materials, then cured, and in some cases smoked for a period ranging from a few hours to several days. Other types are hung in drying rooms under carefully controlled temperatures for anywhere from twenty-five to ninety days or more.

Dry sausage is especially popular among people of foreign birth. German and Scandinavian people are

Pork sausage in the making.



MANUFACTURE OF SAUSAGE

fond of Cervelats and Mettsausage; Italians like the garlic-flavored, highly seasoned Salamis, Mortadellas, and Capicolli; the French and Italians favor the air-dried, unsmoked styles. Spaniards and Mexicans demand a flavor and seasoning that is still different. Some of these varieties have become very popular with native-born Americans so that the quantity which is being manufactured is steadily increasing.

Sausage Specialties

As far as the third group is concerned, we find that some of its products hardly resemble at all the sausages of the first two groups. Yet since they are generally produced in the sausage departments of the meat packing companies, it is most convenient to call them sausage specialties. These include such things as cooked ham, and rolled loins in "Canadian style." In this class are also meat loaves; jellied meats, such as corned beef, tongues, and souse; minced specialties; liver-flavored sausage; chili con carne; and head cheese.

Several Popular Varieties

Every retail dealer should be familiar with the ingredients of the most common types of sausage.

Frankfurts of the highest quality are prepared generally from a mixture of approximately half beef and half pork. After the mixture is ground, it is forced by compressed air either into natural casings (described on page 75) or into artificial casings. The frankfurts are then smoked and cooked. Other grades of frankfurts may have, in addition to the meats described,



Frankfurts being dipped into pineapple juice. This new process illustrates the important part played by research laboratories in modern food preparation.

some less costly meats, cereals, or dried skimmed milk.

The latest discovery in the preparation of frankfurts is the use of pineapple juice. Before smoking, the links are dipped into this juice to permit the enzymes in the pineapples to soften the tissues in the casings, making them more tender. There is no change in the traditional flavor of the frankfurt, because subsequent smoking and cooling removes all trace of the pineapple.

Bologna is prepared in much the same manner as the corresponding grade of frankfurts, except that it is made up in much larger casings and cooked for a longer time.

We should note at this point that kosher sausages, whether frankfurts, bologna, or any other kind, do not contain pork.

MANUFACTURE OF SAUSAGE

Pure pork sausage, as its name implies, is made entirely from pork. The ground meat and spices are not cooked, but are merely stuffed into casings, made into patties, or sold in bulk as sausage meat.

Fresh sausage is made of pork and varying percentages of ground beef or veal—with or without cereals. This sausage must be cooked before being eaten.

Braunschweiger sausage is an excellent grade of liver sausage, stuffed in large hog casings. It is made from livers and pork which have been cooked and, in some cases, smoked.

The more common liver sausage, or liver pudding, is composed of meat food products and pork livers. It may contain cereal or dried skimmed milk, and is cooked in the sausage kitchen at the meat packing plant.

Head cheese is a cooked product made from various cuts of pork head meat. Pork tongues are often used in its manufacture.

Blood sausage is a cooked product containing beef blood, and sometimes chopped bits of fat pork and tongue.

Meat loaf is prepared in a variety of ways. Most of the time it contains beef and pork; occasionally veal. Meat by-products and cereal are frequently added.

Souse consists of a mixture of meat and meat by-products having a large

Sausage and other ready-to-serve meats.



THE STORY OF MEAT

amount of connective tissue. It is therefore very thoroughly cooked at the factory, vinegar is added, and the product is formed in special pans.

Polish-style sausage is prepared from coarsely chopped beef and pork and is highly seasoned with garlic. The meat is then cured, stuffed into hog casings, smoked, and cooked.

Country-style sausage is made of coarsely ground pork that is stuffed into hog casings without being cooked. It may or may not be smoked.

Bockwurst is generally made of meat and eggs with milk sometimes added. It contains no cereals or similar substances. The mixture is simply ground very fine and put into casings. Since it receives no further treatment, it has to be cooked by the purchaser.

Sausage Manufacture Has Grown Rapidly

Enough has been said about sausage making to make us realize that it has become a real art in America. The manufacture of a product requiring the careful study of a wide variety of tastes, and scientific effort to suit these tastes exactly, is a complex and difficult procedure. We can realize therefore why this particular part of the industry has grown so fast.

Fluctuation in Production

Sausage manufacture is greatly influenced by the supply of meat animals. For instance, when the price of pork is low, due to a large supply of pigs, more sausages will be made with pork. On the other hand, an excessive supply of cattle, and a corresponding de-

MANUFACTURE OF SAUSAGE

crease in the pork available, will increase the proportion of beef used in some types of sausage.

“Sausage Sections” of the Country

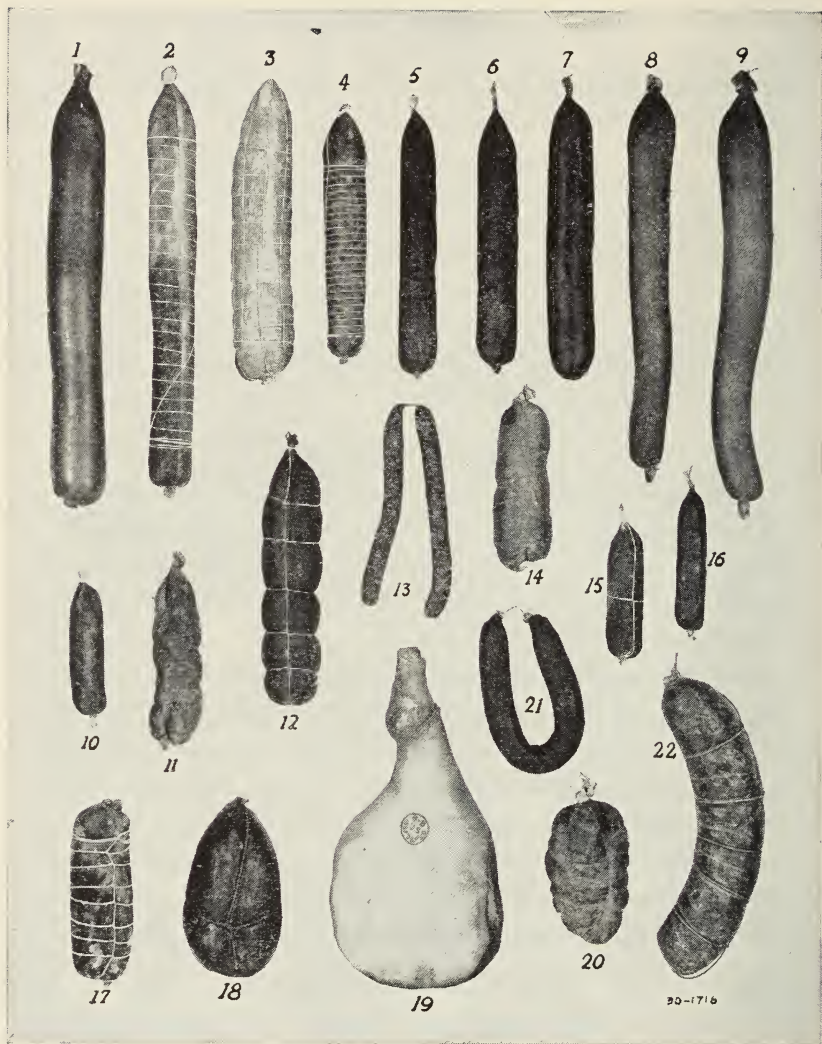
Certain sections of our country where sausage demand is greatest are known in the meat trade as sausage sections. The per capita consumption in our cities, for example, exceeds that in the country, and the largest outlet for the less expensive of our sausages is in the South and Southeast.

Large Production

We get a better idea of the tremendous volume of sausage production in this country when we consider that just the companies making sausage under government supervision (probably our best-known brands), use about seven hundred million pounds of meat for domestic sausage annually. One writer has figured out that this meat “if put up in links sixteen to the pound, would reach from the earth to the moon and back and leave enough to wrap the earth at the equator eight times.” We should remember that this represents only about fifty per cent of the total, for other companies and meat shops throughout the country manufacture sausages locally, and are not subject to federal inspection.

Factors in Growth of Sausage Production

Most important in accounting for the growth of the industry is the attractiveness of the product. The credit must be given first to attempts made by the meat packers to produce a product of high quality.



1. Thuringer Cervelat. 2. Premium Milano Salami. 3. Genoa Salami. 4. Lazio Salami. 5. Goteborg Salami. 6. Farmer Salami. 7. Essex Cervelat. 8. Gothaer Cervelat. 9. Premium Cervelat. 10. Premium Cervelat for display cartons. 11. Veneto Salami. 12. Franklin Salami. 13. Peperoni. 14. Calabrese Salami. 15. Roma Salami. 16. Display Essex Cervelat. 17. Capicolli. 18. Acorn Mortadella. 19. Prosciutti Ham. 20. Lido Salami. 21. Holsteiner. 22. Tramonto Cooked Salami.

MANUFACTURE OF SAUSAGE

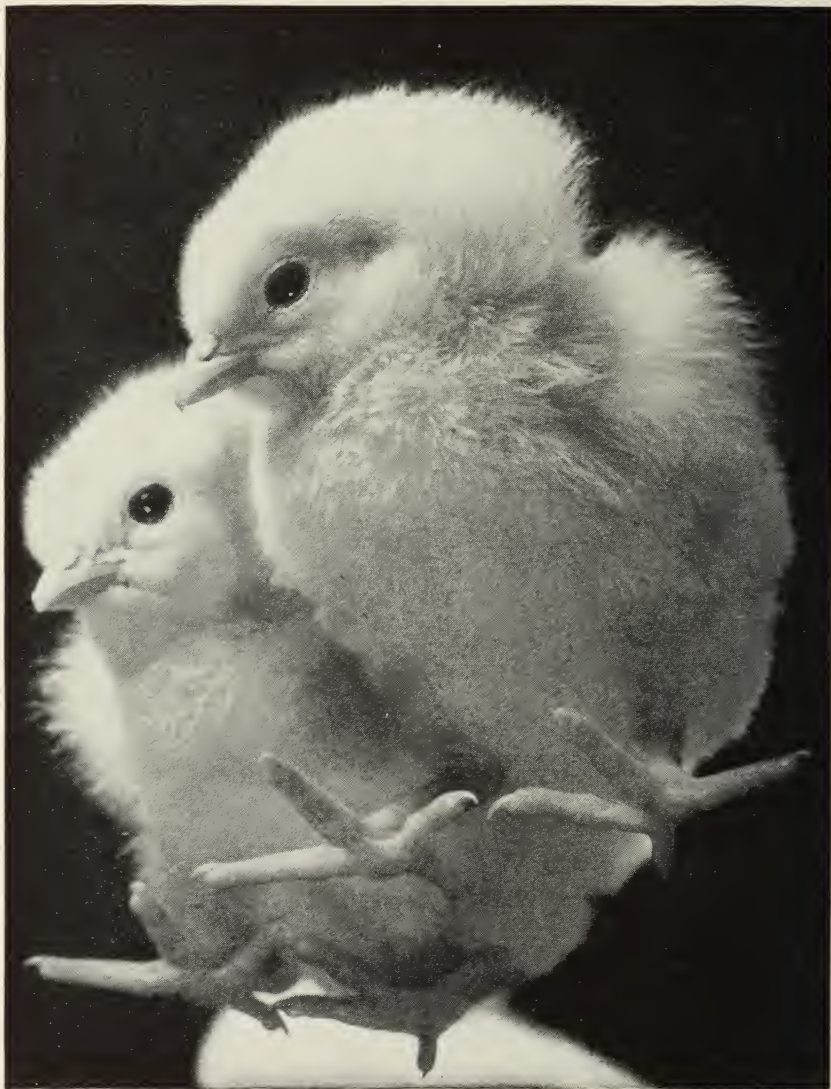
This explains why sausage is now eaten by all sections of the population. Sausage manufacture has reached the point where it has an item for every taste. Furthermore, the speed of American life has made the cold lunch very popular, and the sausage with its convenience and lack of waste constitutes one of its best dishes.

That government inspection has had much to do with making the sausage a valuable part of this country's diet cannot be denied. With inspection came increased public confidence and still further growth of the industry.

Study Questions

1. How old is the practice of sausage-making?
2. How many different kinds of sausage are manufactured in this country? What accounts for so large a number?
3. In what class of packing house products is sausage placed? What materials are used in their production?
4. What difficulties are encountered in the manufacture of sausage?
5. What are the three main classes of sausage? What does each consist of?
6. Describe the ingredients of each of three or four of the more important sausage products.
7. What accounts for the increasing popularity of sausage in this country?

THE STORY OF MEAT



Day-old chicks.

Courtesy Poultry Supply Dealer



Anxious to be fattened.

CHAPTER X

Poultry

Chickens, Turkeys, Ducks, Geese,
Squabs, Pigeons, Guinea Hens

SOME of you may have noticed that whenever we spoke of meat, we were referring to the flesh of cattle, calves, lambs, sheep, and hogs. The term “meat” is, strangely enough, given just that limited meaning in the trade. Yet, strictly speaking, the word applies to any animal flesh used as food. We now wish to consider in our story of meat another important item in a great majority of retail meat stores; that is, poultry.

Definition of Poultry

In its broadest sense, poultry includes all domestic birds which have been produced for eating purposes,

THE STORY OF MEAT

for egg supply, or even for exhibition. By far the most important are chickens; but there are, in addition, such fairly common ones as turkeys, ducks, geese, pigeons, squabs, and guinea hens.

For the present, in speaking of poultry, we shall be referring almost entirely to chickens.

Poultry Industry Very Extensive

Despite the fact that very few sections of the United States are engaged primarily in the raising of poultry, the industry is of tremendous importance. Poultry is produced on a majority of the farms in every state. It is true that in most cases the flocks include no more than two hundred; but the total number of flocks is very large. It is estimated that there are more than 450,000,000 domestic fowl in the country bringing a cash income of well above \$500,000,000 annually. In this respect, the United States leads all other countries.

Four Main Poultry Regions

If we divide the country according to the kinds of flocks raised and the methods by which they are handled, we find that there are four main poultry regions: the Middle West, the Northeast, the Pacific Coast, and the South.

Middle West

The territory lying in the plains between the western and eastern mountain ranges constitutes one of these regions, known to distributors as the Middle

West. From this region comes the largest part of our poultry meat. The grain belt has an ample supply of feeds. The flocks in this region are on the average larger than those in the rest of the



A brood of White Plymouth Rock broilers,
ten weeks old.

country, although there is a tendency for growers in some sections, particularly along the Atlantic seaboard, to raise chickens for meat purposes, in large numbers.

The farm flocks of the Middle West are of various breeds. The birds are large, of the heavy and dual-purpose types; that is, satisfactory for egg production and meat purposes. They are good meat producers. More poultry products are produced in this area than are consumed there, and the region is, therefore, a surplus or shipping area.

Northeast

The Northeast includes, roughly, those states north of the Carolinas and east of Ohio. The poultry population is large but of a more specialized nature than that of the Middle West. Pure-bred flocks of the White Leghorn, or of one of the dual-purpose breeds, are the rule. While there are many small farm flocks, commercial producers with 700 to 1,000 or more

THE STORY OF MEAT

birds are frequently found. These so-called "commercial" flocks have increased markedly in recent years.

The Northeast includes certain specialized areas. One of these is the Delaware-Maryland-Virginia (Del-Mar-Va) peninsula where large commercial plants have capacities of up to 100,000 broilers or more a year. Another is Long Island, New York, where there are many farms specializing in the production of Long Island Spring Ducklings, turning out several thousands of these birds each week.

This Northeast region has not only the greatest consuming market in the country, New York City, but many other industrial and commercial centers. As a result it is a "deficit" area, requiring for its consumption much more poultry than it produces.

Pacific Coast

As for the third region, the Pacific Coast, the increase of the human population and the reduction in poultry numbers have left smaller and smaller surpluses of poultry for shipment East. Nevertheless, a sizable share of the poultry in larger markets throughout the country is supplied from this region. The Pacific Coast states have the largest percentage of commercial-sized flocks in the country.

South

The South, in which is included approximately that area which lies south of the Virginias and along the eastern half of the Gulf Coast, is a "deficit" area.

POULTRY

Flocks are small and of mixed breeding, producing poultry of medium quality.

With the notable exception of Tennessee, the poultry business of the South is largely local and not important in the supply of the major markets of the Northeast. High temperatures and competing crops which produce more income, have been important limiting factors in the growth of the poultry industry in this region. Nonetheless, the industry of the South has shown marked expansion in the last decade.

Chicken Breeds Found in America

Chickens which we handle in this country are the result of the cross-breeding of European and Asiatic fowl. Most American chickens are dual-purpose birds bred for good egg production as well as for meat. Of these, the Rhode Island Red, the White Wyandotte, the Barred and White Plymouth Rocks, are most popular. The White Leghorn is an exception, being raised primarily for eggs. Other breeds found on farms include the Orpingtons, Jersey Black Giant, the New Hampshire, and the Australorp. All of these have good meat qualities, and with the possible exception of the White Leghorn, are birds of good size.

Types of poultry that are raised only for meat purposes generally have heavy-set bodies, full, short legs, and small bones. Their flesh is soft and of high quality, except that, like the flesh of all types, it tends to become fibrous and coarse when the chicken is older than one year of age. Breeds that fall into this



White Plymouth Rock

Chicken Breeds in America

Most Popular Breeds



Barred Plymouth Rock



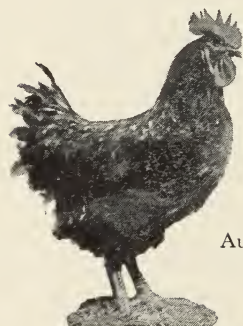
White Wyandotte



Rhode Island
Red



White
Leghorn



Australorp

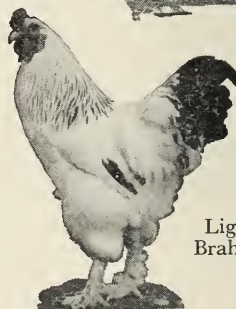
Other Breeds



Buff
Orpington



Jersey Black
Giant



Light
Brahma

POULTRY

group are the Brahmas, Dorkings, Cochins, and Langshans.

Marketing a Difficult Problem

As we have already seen, there are often long distances between the large poultry-consuming centers and the surplus-producing areas. A great many problems arise in marketing the poultry in the best possible condition and at the lowest possible cost.

The small producer cannot efficiently and economically market his own goods, especially for long hauls. As a result, large meat packing plants and dealers collect many small lots and then ship them in large numbers.

Poultry is marketed either alive or dressed. With few exceptions, the producer himself seldom dresses poultry, but instead sells or ships it alive. The reasons for this are that he is seldom sufficiently expert and

White Leghorn hens in egg-laying house.



THE STORY OF MEAT

that he does not have adequate facilities for finishing, dressing, chilling, grading, packing, and shipping.

Marketing Live Poultry

As for live poultry, in addition to their local supply, large cities obtain additional shipments in car lots from the meat packers or shippers of the Middle Western areas. It may be pointed out that a large part of the demand for live poultry comes from the Jewish population. As a result, the demand for live poultry rises noticeably at the time of the Jewish holidays in the spring and fall.

Marketing Dressed Poultry

The great bulk of dressed poultry is supplied to the retailer by individual poultry buyers or by meat packing companies. In most cases the poultry is first fed carefully in order to improve the quality of the flesh. It is then dressed, chilled, graded, packed, and shipped in refrigerated cars or trucks to the large markets for immediate sale or for holding in cold storage for future sale. Sometimes jobbers make large purchases and undertake the task of distribution to retailers.

Organization of Poultry Dealers

A few of the larger cities have an organization of dealers, known as the poultry exchange or poultry board, which sets up rules to govern grading and inspection, and to provide other means to facilitate trading.

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The great necessity for rules of some sort is very clear to any retail dealer. The names of the classes of poultry meat have such different meanings in various parts of the country that they must be separately defined for the dealer in each community.

One of the most important sets of classifications is that used in the New York live poultry market. We shall present just a brief definition of each market term used there.

Classifications in New York Live Poultry Market

The youngest birds coming to the market are known as squab broilers—six to eight weeks old, and up to one and a half pounds in weight.

Broilers are young birds, of either sex, weighing up to three pounds, and occasionally three and a half pounds, for heavy breeds in the spring and in summer.

Pullets are young female birds, heavier than broilers but still immature.

Chickens generally are large-sized, young, soft-meated, male birds; but the term is occasionally used to refer to broilers and pullets as well.

Fowl are mature female birds of any age or weight.

Capons are males, unsexed while still young.

Slips are incompletely caponized male birds showing some comb and spur development.

Stags are fairly mature males whose flesh is somewhat coarse.



Barred Plymouth Rock pullet.

Old roosters are the old, fully-matured males with noticeably tough flesh.

New York Classification of Dressed Poultry

Dressed birds in the New York market are classified in much the same manner, with a few exceptions. Broilers do not weigh over two and a half pounds each. The terms "chickens" and "pullets" are not used. Their places are taken by fryers, referring to immature birds of either sex, weighing more than broilers, but not more than three and a half pounds; and roasters, referring to immature birds weighing over three and a half pounds. Stags, capons, and slips have the same meaning as on the live poultry market. Old roosters are known as cocks.

Additional Classification of Dressed Poultry

Dressed poultry is also classified according to the manner in which it is fed, or "finished," and according to the different operations that may have been used in handling or preparing it for the market. In any case, when the birds arrive at the market at

least two things are true: first, that the digestive tract is empty as a result of their being kept without food for a period of time before dressing; and second, that the blood and feathers have been removed.

Barred Plymouth Rock Capon.



POULTRY

Poultry Finishing

The feed eaten by the bird during the week or two before it is dressed determines the distribution of fat within the flesh. The appearance and tenderness of the dressed bird can thus be controlled and the market value enhanced by proper finishing.

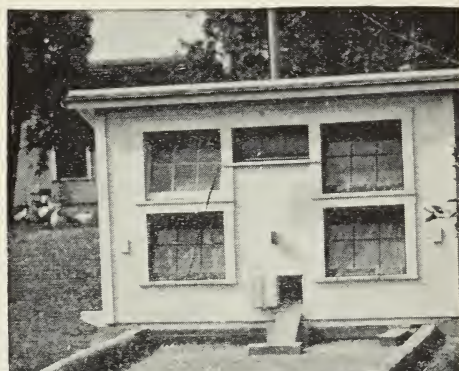
A soft mash diet of ground grains to which milk or buttermilk in dried or liquid form is sometimes added, produces a tender, soft-meated bird with characteristically soft, pliable skin. Muscle fibres are softened by the addition of soft fat within the flesh, and the skin is whitened by the dispersion of the yellow, hard fat that is characteristic of grain feeding. This light-colored skin, with soft and tender flesh, indicates that the bird has been properly fed. Any poultry that does not show evidence of soft mash feeding is known as poultry with no finish.

Dressing Methods:

Wax-picking

Hand operations in killing and picking birds have

White Plymouth Rock pullets
with brooder house in rear.





White Plymouth Rock rooster.

been developed to a high degree of specialization, but most of the larger plants have mechanized the dressing of poultry to a large extent. The latest method involves dipping the rough-picked birds in melted wax, hardening this wax coat, and flaking it off with all feathers and hairs adhering to it. This process saves materially in dressing plant costs and leaves the birds with the

finest appearance for market.

Dry-picking

Although the wax process has largely replaced dry-picking in large operations, the removal of feathers dry, after they have been loosened by skillful sticking, is still practiced in many smaller plants. In dry-picked birds, the power of the skin to protect the flesh of the bird to some extent from bacterial infection and keep it in wholesome condition remains unimpaired.

Semi-scalding

Where hot water is used to loosen the feathers, the protective powers of the skin are weakened. Semi-scalded or slack-scald poultry is immersed in warm water (125-129° F.). This temperature does not seri-

Barred Plymouth Rock rooster.





The four-story "apartments" for the feeding of poultry are light, airy, and clean.

ously damage the skin; in fact, it improves the appearance of the finished bird by softening and distributing the fat of the skin and tissues immediately below it.

First-grade dressed poultry must be wax, dry, or semi-scald picked.

Scalding

Full scalding in water near the boiling point (about 190° F.) actually cooks the muscles holding the

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feathers. It is suitable only where poultry moves into immediate consumption, as in local markets where producers or local butchers prepare poultry for consumers. The disadvantages, poor keeping quality and appearance, are not serious within the very short period between dressing and consumption and are easily outweighed by the greater speed and ease of this method for small lots.

Preservation of Dressed Poultry: Chilled or "Fresh-killed"

After these processes are completed, immediate cooling is necessary for purposes of preservation. Dressed poultry that is merely chilled and held at temperatures just below freezing still sells as "fresh-killed" and is usually consumed within two weeks after being brought to market.

Freezing

Dressed birds that are to be held for longer periods of time are frozen by being placed in temperatures of from 0° to -20° F. The solidly frozen birds are held in rooms at about 10° F. until ready for further distribution. They are thawed before sale to the consumer and are handled in the retail store in much the same manner as fresh-killed stock.

Quick Freezing

The latest method, that of quick freezing, is simply the very rapid cooling of the poultry meat by subjecting it to extremely low temperatures, as cold as -22° F., and in some processes even as low as -50° F.

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When the flesh is cooled so rapidly, crystals which form within the cells of the flesh in ordinary freezing, and which destroy much of the cell structure, do not have time to grow to destructive proportions. Thus, upon thawing, the flesh more nearly resembles the original texture, flavor, and appearance of the fresh-killed fowl. Only a very small portion of the poultry meat marketed is prepared in this form. As retailers acquire equipment to hold quick-frozen foods, further expansion of the process may be expected.

Wax-picking: After the wax is hardened it is easily removed, taking all pin feathers and fine hairs with it.





Drawing and cleaning chickens before quick-freezing.

Dressed and Full-drawn

Generally speaking, poultry keeps in the best condition if the viscera are left untouched in the body; that is, if the bird is "undrawn." Because of the development of quick freezing and other factors, however, more and more dressed poultry is being eviscerated at packing plants and sold as full-drawn birds—ready to cook. Birds prepared in this way have become particularly popular with the larger users such as hotels and restaurants.

The reason full-drawn poultry is found in large markets is easily understandable. There are savings in the cost of transportation as a result of the removal of the unused parts, and economy of labor in large-scale operations as compared with the usual practice of drawing in the retail store. The quoted price per pound of full-drawn poultry is necessarily higher than that for plain-dressed, but considering the smaller waste, the actual cost is very little, if any, higher.

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Packing Methods

In the early days, dressed poultry was packed in barrels similar in shape to sugar barrels. The barrel is still used for the lower grades of poultry, and for the larger birds such as turkeys, geese, and old roosters. Small barrels are used for country-dressed broilers and fowl which are packed with ice and shipped by truck or express from small country packing plants, located within short distances from the large markets.

Large meat packing plants have adopted the box as a package for all first- and second-grade, and occasionally even third-grade, poultry. Many meat packers use the box in preference to the barrel for turkeys and geese as well. Birds are usually packed twelve to the box, with occasional packs of twenty-four small broilers, or six turkeys or geese.

Full-drawn, quick-frozen poultry is packed in wooden and veneer boxes, but some companies are experimenting with corrugated or fibre-board packages, holding either six or twelve birds. Wooden boxes are always lined with parchment or wax paper, and the birds are occasionally individually wrapped in parchment or cellulose film.

New method of packing dressed poultry.



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Grades: Live Poultry

Live poultry grades are in the experimental stage. The protective covering of feathers hides many of the quality factors that are readily apparent after the bird is dressed. There are tentative United States standards and at least one set of state grades, in New Jersey.

The latter have been very successful in connection with the sale of live poultry at the poultry auctions. The use of live poultry grades will undoubtedly expand as buyers become accustomed to them and the grades themselves are developed with practical application.

Grades: Dressed Poultry

Grades for dressed poultry have been in use for many years. Meat packers developed brands or trade marks of dressed poultry years before actual grades were proposed. Many of these brands have become so well established in the minds of the trade that they have taken on the proportions of grades.

There are, however, tentative U. S. standards and grades for dressed poultry which divide edible birds of the various classes into four grades: Special or Grade AA; Prime or Grade A; Choice or Grade B; and Commercial or Grade C. The specifications for these grades vary with the different classes of poultry and are too extensive for reproduction here. The following description of classification and grades is based on a bulletin of the U. S. Department of Agriculture, Bureau of Agricultural Economics:

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Classification of Dressed Chickens According to Kind, Age, Sex, and Weight

Classes of Dressed Chickens

Young Birds

1. Broilers
2. Fryers
3. Roasters
4. Stags
5. Capons

Old Birds

1. Fowl
2. Cocks

Classification of Dressed Chickens According to Method of Picking, Dressing, Finishing, Chilling, and Packing

I. *Picking:*

1. Scalded
2. Semi-scalded
3. Dry-picked

III. *Finishing:*

1. Milk-fed
2. Grain-fed

II. *Dressing:*

1. Drawn
2. Undrawn

IV. *Chilling:*

1. Fresh-dressed
2. Fresh hard-chilled
3. Frozen

V. *Packing:*

1. Dry
2. Iced

Grades for Dressed Chickens

Four grades for dressed chickens of each class are provided:

- U. S. Special or U. S. Grade AA
- U. S. Prime or U. S. Grade A
- U. S. Choice or U. S. Grade B
- U. S. Commercial or U. S. Grade C

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Definitions of Terms Used in the Tentative U. S. Standards and Grades for Dressed Chickens CLASSES OF DRESSED CHICKENS:

Broilers—Young chickens, approximately 8 to 12 weeks old, of either sex, of marketable age but not weighing over $2\frac{1}{2}$ pounds, and sufficiently soft-meated to be cooked tender by broiling.

Fryers—Young chickens, approximately 14 to 20 weeks old, of either sex, weighing more than $2\frac{1}{2}$ pounds but not more than $3\frac{1}{2}$ pounds, and sufficiently soft-meated to be cooked tender by frying.

Roasters—Young chickens, approximately 5 to 9 months old, of either sex, weighing over $3\frac{1}{2}$ pounds, and sufficiently soft-meated to be cooked tender by roasting.

Stags—Male birds, of any weight or age, with flesh slightly darkened and toughened, and with comb and spur development showing the bird to be in a state of maturity between roasting chickens and cocks.

Slips—Incompletely caponized male birds weighing over 4 pounds, with comb, spur, and flesh development similar to that of stags.

Cocks—Mature male birds of any weight with darkened and toughened flesh.

Capons—Unsexed male birds weighing over 4 pounds, usually 7 to 10 months old, with soft and tender flesh.

Fowl—Mature female birds of any age or weight.

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U. S. GRADES:

U. S. Special or U. S. Grade AA—

Commercially perfect specimens of any class.

U. S. Prime or U. S. Grade A—

The second highest grade of poultry.

U. S. Choice or U. S. Grade B—

The third highest grade of poultry.

U. S. Commercial or U. S. Grade C—

The lowest grade of edible poultry.

PICKING:

Scalded—Poultry that has been picked by immersing in scalding water usually at a temperature from 170° to 180° Fahrenheit.

Semi-scalded—Poultry that has been picked by immersing in hot water, usually at a temperature from 125° to 130° Fahrenheit.

Dry-picked—Poultry that has been picked without wetting the feathers.

FINISHING:

Milk-fed—Poultry with skin and flesh bleached by buttermilk fed with the ration, and with muscle fibre softened by fatty deposits throughout the connective tissue. The usual period of milk-feeding is from 6 to 10 days.

Grain-fed—Poultry that does not show evidences of milk-feeding.

CHILLING:

Fresh-dressed—Poultry that has not been hard-chilled or frozen.

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Fresh hard-chilled—Fresh-dressed poultry that has been frozen only hard enough to allow it to be carried in good condition to market.

Frozen—Poultry that has been frozen solid and held at storage temperature for a period of 30 days or longer.

PACKING:

Dry—Either scalded, semi-scalded, or dry-picked poultry that has been packed dry and cooled without having ice come in direct contact with the carcass.

Iced—Either scalded, semi-scalded, or dry-picked poultry packed in direct contact with ice.

Other Poultry

Our story thus far has made little mention of the poultry species of lesser importance. These include turkeys, ducks, geese, guineas, squabs, pigeons, and game birds.

Turkeys

Turkeys are of great importance two weeks of the year, those immediately preceding the Thanksgiving

Part of a flock of 10,000 turkeys on a California ranch.



and Christmas holidays. Concerted efforts to lengthen the marketing period for turkey meat are meeting with fair success. There is a very pronounced tendency toward the year-round sale of turkeys, in addition to the advertising of Washington's Birthday as another "turkey" holiday.



Dressed and beribboned turkeys on display.

The trend in production is toward specialized turkey farms in contrast to the small scattered flocks of former years. These farms are located chiefly in California, the Northwest, Texas, Oklahoma, Iowa, and the Eastern Shore (Maryland and Virginia), with a few flocks scattered generally in all parts of the country.

The turkeys most favored in New York are those from Vermont and from the Northwest, with a few popular brands from other sections. The Bronze is the most common and largest breed, followed by the White Holland and Bourbon Red. Young birds are sold during the fall and early winter, old hens and toms in late spring and summer after the breeding season.

The birds are marketed farm-dressed, custom- or packer-dressed, or alive. A relatively small part of the turkey crop is marketed alive because it is more

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economical to dress them in the localities where they are raised and to ship the dressed birds. One reason is that live turkeys do not stand up well in shipment and bruise very easily in handling. Farm dressing, except for local markets, is being replaced by custom dressing, wherein the poultry packing house or country station using modern, efficient methods dresses the birds at a flat charge. A large share of the crop moves

through meat packing houses in the same manner as chickens.

Grades for turkeys are somewhat similar to those for dressed chickens, ranging from practically perfect specimens in U. S. Special or AA through the com-

mmercial top or extra fancy grade A or U. S. Prime, U. S. Choice or B, to U. S. Commercial or C. They are packed in barrels or boxes, the latter becoming more prevalent each year, particularly for the higher grades.

Long Island Ducklings

Long Island Ducklings have already been mentioned as an outstanding development in specialization in a particular type of poultry within a small area. Their success has led many other sections to



Long Island Ducklings.

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produce Long Island style ducklings; notably Massachusetts, Rhode Island, upstate New York, and Illinois. These birds are young, specially bred and fattened White Pekin Ducklings, averaging about six pounds.

Aside from those sold alive for the live trade, most Long Island Ducklings are dressed and packed on the farm. They are available fresh-killed, barrel- or box-packed, from March until November, and box-packed from storage the rest of the year. Many ducklings are quick-frozen within a few hours after dressing and packed in boxes to be sold throughout the year. The old breeders are usually marketed alive at the close of the breeding season.

Western Ducks

Western ducks are of quite a different type. They are Pekin, Rouen, Muscovy, and mixed varieties, usually smaller in size and firmer fleshed than the Long Island Ducklings. They are raised throughout the country but mostly in the states bordering on the Mississippi river. The market period for dressed ducks is mostly in the fall, with live birds available the year round.

Most western ducks are box-packed but the barrel and keg are still in common use. There are tentative government standards for ducks which provide for three grades: U. S. Prime or A, U. S. Choice or B, and U. S. Commercial or C. The first two grades are also subdivided into young and old.



Wild geese on the wing.

Geese

Geese follow much the same market route as western ducks. Most of them are produced in Missouri, Iowa, and Minnesota. There are a few specialized fattening farms around metropolitan markets which buy up western geese and fatten them for the holidays. They are available in quantity only during the fall and winter holidays. The demand for geese seems to be declining.

Packages are mostly barrels, some particularly fine qualities being packed in boxes. Grades are the same as for ducks. There is a small demand for the large

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hand-fattened or stuffed geese during the holidays, but most buyers desire eight- to twelve-pound birds.

Guinea Fowl

Guinea fowl are kept on many farms for their loud warning of the presence of predatory birds and animals. They require little attention and are usually left alone, except for occasional feeding, until the fall, when the flock is rounded up and the surplus marketed. Some guineas are usually available alive the year round, but dressed birds are obtainable only in the fall and winter months. The demand is mostly for banquets and high-class restaurant trade.

Guinea fowl are quoted by the pair, usually weighing from three to four pounds a pair, but are packed in boxes of one dozen, dressed, and graded similarly to broilers. A few birds are still found on the market unpicked, used generally for display purposes.

Squabs

The best squabs are produced in specialized plants where the pigeons are carefully bred, housed, and

Domestic geese on farm.





Guinea hen and
her brood.

fed to produce the young squabs of desirable size and quality. Small plants are scattered over the country with some concentration in California, the Carolinas, and the areas immediately surrounding large cities.

Squabs are used mainly for banquets and high-class retail trade and must be very carefully graded for uniformity. They must show no hardening of the beak or darkening of the flesh, indicating that the bird has been allowed to leave the nest. They are available throughout the year but mostly during the summer.

Squabs are dressed on the farm and generally ice-packed in kegs or barrels, tied together by the feet in bunches of eight or twelve. Those from the West Coast are usually dry packed twelve to a box, frozen.

Pigeons

Pigeons are marketed alive, although a few are killed and left unpicked for display purposes.



A bevy of quail (Bob-Whites) in snow.

Game Birds

Game birds are handled by relatively few dealers, and then usually only under special license. Since various game laws of this country forbid the traffic in most of the native game birds, most game is imported, or, in a few cases, raised on farms specializing in such production. Most varieties of game birds are obtainable, but the demand is so small and erratic

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that few dealers undertake even to handle such trade. There are merchants who specialize in this trade in large cities, but the bulk of their business is in the staple domestic chickens.

Study Questions

1. How many main poultry regions are there in this country? Where are they? What kinds of chicken flocks are raised in each?

2. Which are the most important chicken breeds raised in this country?

3. How is live poultry marketed? Dressed poultry?

4. List and describe the classes of live poultry and dressed poultry in markets in your city.

5. What are the two main methods of finishing poultry?

6. Describe the methods of dressing poultry.

7. In what ways is poultry preserved before distribution to the retailer?

8. What is meant by full-drawn poultry?

9. What other important poultry besides chickens is found on the market?

CHAPTER XI

The Retail Trade

Elements Required to
Carry on This Highly
Specialized Job

THE proper functioning of the entire meat industry depends to a large extent upon the efficiency, practical knowledge, and managerial skill of the retail dealer.

It is interesting to note that a number of surveys conducted by the United States Department of Agriculture revealed that "... efficiency in operation is not due to size, number of units, or large capital employed, but is due more particularly to the qualifications and practical knowledge of the management. This involved administrative ability, use of sufficient equipment, honest methods, truthful advertising, and a personality that inspires confidence."

In addition, "the operator of the small store . . . who has a practical knowledge of the business and possesses the other necessary qualifications, has prac-



Scene at meat counter
of busy retail store.

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tically the same chance as the large operators. The business of retailing meats is a technical one and requires a form of specialization not generally appreciated heretofore."

We shall give special consideration here to some of the practical problems faced by the retail meat dealer.

Two Types of Stores

In general, meat is sold in two types of retail establishments: the store handling only meat, and the combination food store including a meat department. The trend in recent years has been toward the combination store, so that now such stores do most of the retail meat business. This does not indicate, however, that the specialized meat store is unprofitable. The experience of many dealers proves that a store handling meats exclusively can be successfully operated.

It has also been proved that a well-managed meat department in the combination food store contributes much to the entire store. This is because the meat makes the meal, and housewives plan the meal around this important food. The store that sells them meat has an excellent opportunity to sell them the other items. The vegetables, salad, and even the dessert are usually decided after the selection of the meat item.



Customers usually buy vegetables that go well with the meat already decided upon.

Meat Purchased Daily

For the most part, meat is a daily purchase item. It is perishable and must be used quickly. Even in neighborhoods where home refrigeration is the most modern, women do not like to purchase meat far in advance. Unlike groceries, they prefer to buy meats from day to day—sometimes even twice daily. This gives the merchant an opportunity to sell additional items—items which they may have gone without if they had not come to the store to buy meat. Thus the meat department of a combination store is one of the most important departments for bringing customers in frequently.

Consumers' Buying Habits

Many studies of consumers' buying habits reveal that a good meat department will attract customers

THE STORY OF MEAT

from a greater distance than almost any other department in a combination store. Meat customers are steady customers who come in so frequently that they quickly develop the habit of trading in that store.

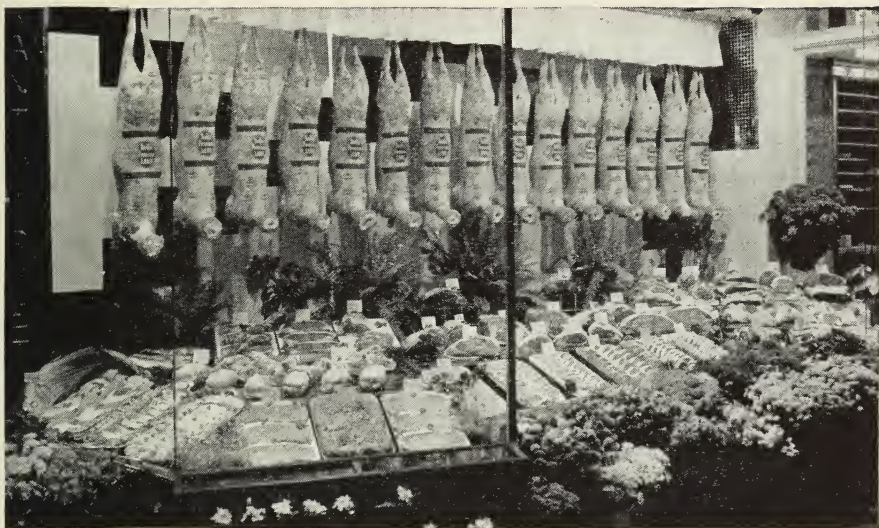
For many years "price" has been recognized as a highly important factor in the success of any retail operation. The meat department or meat store, however, is not nearly so vulnerable to "cut price" competition as are other divisions of the food field. To a large extent, women buy meats where they have confidence in the retailer. In most neighborhoods, good salesmanship backed by good quality at fair prices will be rewarded by steady "repeat" business. This makes a study of meat selling particularly important.

The "butcher shop" of the old days, with its pickle barrel in the front and dark ice box in the rear, has been supplanted by the up-to-date store which is really a scientific sales machine. The dealer is the sales director. The success of the retail meat dealer in competition with others depends not only upon his personal salesmanship, but also upon the sales appeal and operating efficiency of his establishment.

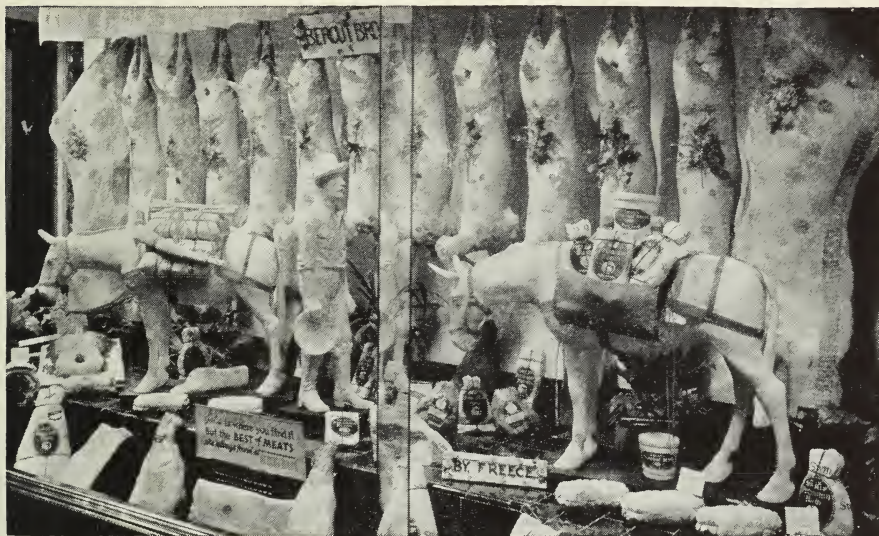
Store Front

The very store front helps to give the store a character suited to the neighborhood, helps to display merchandise, and serves as an invitation to people to make their purchases there. The store front will

Novel Store Windows



Refrigerated show windows permit large and attractive displays.



Artistry and appetite appeal.

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naturally vary with such conditions as the kind of neighborhood, the climate, and the type of building in which it is located; but there are always unlimited possibilities for making it attractive, distinctive, and inviting.

Certain general principles have been found to apply to the building of fronts for food stores. It may be said, for example, that the store entrance should be as nearly in the center as possible, and not to one side. Such an entrance (as near as possible to the sidewalk level) makes for the best arrangement of display windows. It also brings the customer to a position in the store from which she can obtain the most complete view of all of the items displayed for sale. The store window should have a low background, if it is to invite people into the store itself, and if it is not to look dull, uninviting, and isolated

An unusual feature of this store interior is a display of prize beef.



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from the store. In addition, the store entrance should be clear of all obstructions.

Layout for Operating Efficiency

As far as the interior of the store is concerned, we may make the generalization that operating efficiency demands a layout requiring the least amount of footwork by the personnel. Thus, in a small store, those items which sell most rapidly can be placed right near the cash register or other center of activity so that these orders can be handled most quickly.

If the store is properly arranged, it will be possible to handle delivery orders quickly and with little confusion, and still take care of small orders without taxing the patience of any customer. The store should be so arranged as to bring people to the rear. Display and sales value of all the wall and floor space

Here stools are placed before the counter to add to the customers' comfort.

Courtesy C. V. Hill & Co., Inc.



THE STORY OF MEAT

must be carefully considered. In this way, while people are waiting, they have an opportunity to look at many items which the dealer is trying to sell.

Sanitation Builds Sales

Throughout the store, sanitary regulations should be observed. This is important not only from the standpoint of health, but also in that it is a valuable service to the community. Furthermore, it is of tremendous effect in getting and keeping customers, and the confidence which it creates increases the consumption of meat.

When windows are clean, people can easily look inside. Clean cases help protect the meats displayed. Drain pipes must be thoroughly flushed if they are not to become centers for the growth of bacteria. Meat blocks should receive special attention to prevent odors, especially during the summer. The cooler must be kept clean and orderly.

Clean choppers and other tools not only eliminate the possibility of the meat's acquiring unwelcome odors, but also operate with greater efficiency.

Personal cleanliness is an even better advertisement of the cleanliness of the entire store behind the scenes as well as in front.

Bookkeeping Must Be Adequate

A large number of the failures in the retail meat trade is due to the entrance into the field of persons

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who not only do not possess the required technical skill, but who also do not realize the urgent necessity for an adequate system of bookkeeping. So many are the changes made in the commodities handled, so elusive are the elements of overhead, that merely reckoning the cost and selling price of meat is woefully insufficient for maintaining the business on a profitable basis.

A complete system of bookkeeping must include such items as net sales, cost of goods sold, gross margin, total expense, profit, salaries and wages, rent, wrappings, refrigeration, light and power, depreciation, delivery expense, telephone, laundry, bad debts, advertising, insurance, taxes, and repairs.

Items Not to be Overlooked

It is surprising to find how often the owner's salary, or that of his partner or partners, is considered as part of the profit in the business. Actually, it is in most cases simply a payment for work done, and therefore, like other wages, a part of the expense of running the business. Only after the payment of these and other expenses can the net profit on the investment be figured.

Similarly, where the store is owned by the meat dealer, it is necessary to include as a part of the cost, the rental it would be possible to obtain by renting the store to someone else.

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Frequency of turnover in the stock is particularly important in the meat business. Buying in large quantities may seem to be profitable because of a little reduction in cost. If the stock does not move quickly, however, the relatively rapid deterioration and shrinkage of meat will produce losses and not profits.

Meat Department Profits

The profits from meat retailing depend on four factors: mark-up, turnover, stock investment, and cost of doing business. True, the cost of operating a meat department is larger than that of most departments because of additional fixtures, equipment, and man power. Meats, however, compare favorably on all other three counts. It is not unusual for meats to "turn over" 50 or 60 times a year. This makes the stock investment small as compared with total sales. The "mark-up" is larger than in any other department with the possible exception of fresh fruits and vegetables. Naturally the amount of mark-up varies, depending on competition, cost of doing business, and volume. It is highly advisable to make up a weekly meat report. This will show exactly what the mark-up and volume must be for successful operation. It need not be elaborate—a simple form such as that shown on the opposite page is preferred by many successful merchants.

Above all, this report should be made up regularly each week. Some dealers prefer to take inventory

Weekly Meat Report

Week Ending _____

PURCHASES			SALES (Cash and Credit)		
	\$		Monday		
			Tuesday		
			Wednesday		
			Thursday		
			Friday		
			Saturday		
A. Total Week's Purchases			B. Total Week's Sales		

WEEKLY EXPENSE			SUMMARY		
Rent	\$		1. Week's Sales (B)	\$	
Salaries			2. Opening Inventory (At cost)		
Delivery			3. Total Purchases (A)		
Phone, Light, Heat, Refrigeration			4. Add 2 and 3		
Advertising			5. Closing Inventory (At cost)		
Supplies			6. Cost of Mdse. Sold (Deduct 5 from 4)		
Bad Debts, Int., Ins.			7. Gross Profit (Deduct 6 from 1)		
Misc. Exp. and Dep.			8. Total Week's Exp. (C)		
Taxes			9. Net Profit for Week (Deduct 8 from 7)		
Repairs and Replacements			Percentage of Expense to Total Sales _____ % (Divide Total Sales (B) into Total Expense (C) and multiply by 100 to get this percentage.)		
C. Total Week's Expense					

The percentage in lower right-hand corner may be used as a guide for determining the "mark-up" on future business. The average mark-up must be greater than the per cent of expense if the store or department is to make a profit. Of course, the sales volume as well as expense must be consistent.

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Monday morning when stocks are low and trade slow. This also acts as an incentive for sales people to "clean up" the stock of meats well before the Saturday night closing, thus reducing carry-over and shrink.

Selling Problems

The typical customer sticks closely to just a few items in meats, some being limited to ten items or fewer. Every man selling meats knows this. He also knows that it would be a fine thing to introduce his customers to new and different items. Most merchants have long recognized that their very best customers are those who use the widest variety.

Offhand it may appear logical to do a straight selling job of introducing customers to a greater variety. But it's not so easy as that. Good retail selling must *hold* customers. When a customer says in a hesitating fashion—"No-o-o-o," the man behind the counter had better beware, for if he urges her to buy the new item and then the family does not like it, she will think:

"Darn that meat man of mine. He's always selling



To hold customers, the retail dealer must sell satisfaction along with his meats.

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me something I don't really want. I'm going to another market."

Even greater care must be used to avoid "pushy" selling in the meat department than in the grocery department. After all, Mrs. Smithers may be sold three cans of pumpkin she may not like very much, but she doesn't become angry. She simply puts the other two cans on the pantry shelf. She can't do this with meats.

Meats Hardest to Sell

Because meats are perishable and popular, they are harder to sell than groceries. Fresh meat must be eaten soon after it is purchased. Also, if the family doesn't like the meat, which is the main dish, the entire meal is ruined. Mrs. Customer buys her meats where she has confidence in the meat retailer or clerk, who is expected to know just what the family likes.

The problem of selling meats, therefore, must be carefully planned, using the three major selling forces: advertising, personal salesmanship, and display.

Display, a Powerful Sales Agent

The element of display is one of the vital factors in promoting sales. While the store should never appear crowded, merchandise should be displayed within the entire range of vision in such a fashion as to appear appetizing and desirable. All items should be clearly price-tagged.



Displays in and on showcases assist Mrs. Housewife in making her selection.

It is true that meats must be shown in a display case because they are perishable, despite the fact that tests prove that out-in-the-open displays sell best. Other merchandise can be stacked up en masse, but for the most part this isn't practical with meats. Also, those grocery items which are placed in uniform packages have the advantage of being priced by these regular units. In the case of meat cuts, their varying shapes make this difficult.

In most departments the goods are larger than the fixtures and by changing the displayed items new interest of shoppers may be aroused. But in meats the fixtures must be larger than the goods, which makes it hard to change the appearance of the department.

Feature Individual Items

Before a display can sell, *individual* items must be easily seen. Meat products much the same color,

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quantity, and shape shown through glass may blend together and just say, "Meats." Often they cannot be *seen individually, identified, or wanted* unless the customer is up close to the case. Women never buy just "meat"—they buy particular items like pork chops, liver, steaks, roasts, bacon, ham, etc., and therefore, the job is to arrange the case so they will see individual items quickly, easily, and from the greatest possible distance away from the case.

"Stoppers" for Shoppers

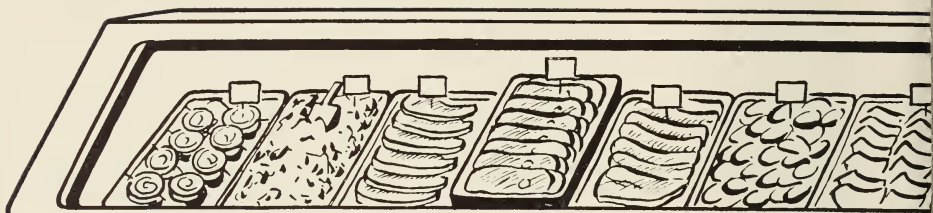
This is not difficult. Simply take the flat regular case display and raise one or two items so that customers can't keep from seeing some one item. Like a fence, we never see the pickets because they are so regular, but one picket larger and longer than the rest will attract attention. In a 6-foot case, one of these featured items is enough; for a 12-foot case, not more than two.

These "stopper" items should be changed often in location, variety, arrangement, and outline. The job is to get attention from regular customers on daily trips as well as to attract new trade.

Store tests prove that when one item is featured in this way, sales of other items do not drop off.



The double quantity in the center of showcase attracts the eye and abundance of product invites buying.



The raised tray is an eye-stopper, urging the customer to pause and review the items on display.

General sales increase. The “stopper” not only gets much additional business, but acts as a lead for other items displayed.

Large Displays Help Sales

Thousands of store tests have proved that, up to a given point, the more of a product shown in a display the easier it is to sell. There are two reasons for this. The liberal quantity gets good selling attention for that item from the clerk behind the counter. And the large display tells the customer: “We sell a lot of this. The price must be right. You, too, had better buy some.”

With a limited quantity the reverse is just as true. Every salesman knows how difficult it is to sell the last few cuts on a platter or the last two or three fowls. When a display is down to the last two or three units, it can often be closed out best by placing it in the walk-in cooler, and suggesting the item to customers.



A special tag of unusual shape or size acts as a “stopper.”



A tray of different shape, with or without garnish, also helps to draw the attention of shoppers.

Personal Selling in Meat Department

There is no department in the store where good selling can do so much good or where poor selling can do so much harm as in the meat department. This is because most women do not consider themselves competent judges of meat quality and often buy where they have confidence in the meat salesman.

Careful study shows good meat salesmanship is not an accident or luck. It is the result of a whole series of little practices. Here are some that have been carefully observed and studied:

(1) *Sell with the item before the customer*—The impulse to buy is far stronger with the suggested item right before the customer. The reason is plain. A juicy steak can make mouths water better than words.

(2) *Help customer visualize the number of servings*—Every woman knows how many servings she will get out of a dozen eggs or a grapefruit. The servings from a slice of steak, a pound of pork sausage, or a



Garnishing one tray provides a "spotlight" for that item.



three-pound roast are somewhat vague and indefinite to most women. It's a good practice to give this information. Customers then buy more readily and are better satisfied. Even experienced shoppers appreciate this service.

When cutting to order it is a good plan to "mark off" the size asked for before the cut is made, as often the customer will say, "Make it a little thicker." Moreover, this avoids possibilities of dissatisfaction after cutting.

(3) *Don't say, "Sorry, we're all out of it."*—Let's suppose a customer asks for fresh pork sausage links—and the shop is temporarily out of links but has a liberal supply of patties. If the simple announcement is that you are out of links, the customer may walk out and a sale is lost—or if we then try to sell her patties as a substitute she may resent it a little.

It would be best to lead the customer to the pork sausage display and say:

"We have some fine fresh pork sausage just in today, Mrs. Smith——."

By this time the customer is looking at the sausage. Then the salesman adds: "But unfortunately we don't happen to have the links." In most cases the

customer's reaction is: "Say, those patties look good. It's been some time since we had patties."

(4) *Use appetite appeal*—

Every meat salesman should have a wide variety of phrases

that "picture" the meats as they will look when served. This is often hard to put in a fresh meat case display. Here are a few illustrations:

"These pork sausages well browned and served with little thin hot cakes will certainly make mouths water at breakfast."

"One of those chickens stuffed with dressing—baked to a turn and served with a touch of cranberry sauce—would certainly be good, Mrs. Jones."

"It's hard to beat a nice juicy steak—with natural gravy and French-fried potatoes."

(5) *Suggest additional meat items*—If the customer is buying meat for lunch, suggest a dinner (or supper) item. If the item is for dinner, suggest another for breakfast. The more this can be done in incidental and helpful fashion, the better. Experience proves that the best time to make such suggestions is when the first sale is completed. An opportune moment is during the preparation or wrapping of the item al-



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ready purchased. The customer's mind is free of the main purchasing problem and can give full attention to the suggestion.

The selling should always be specific and mention a definite item.

Wrong: "Anything else?"

Weak: "What about something for breakfast?"

Better: "We have some wonderful ham slices, Mrs. Smith—just the thing for breakfast. They're right in the case."

Watch her face and if she doesn't show interest then say:-

"Or perhaps you'd rather have fresh pork sausage tomorrow for breakfast."

This method centers her interest and attention on one item at a time and plainly implies that some meat item is necessary for breakfast.

(6) *Sell week-end specials in advance*—"We're going to have some fine young ducks this week-end, Mrs. Jenkins. If you'd like, I'll be glad to select one just the right size for your family——."

Again the salesman watches her face and if he notes a lack of interest, adds—

"Or perhaps you'd rather have me put aside a nice rib roast."

The plan of special selection of Sunday dinner items insures the customer's buying her week-end meats at that store—makes her feel she is getting

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special service—as she is—and helps the store determine quantities to order.

The Salesman Women Like

Here are the characteristics of the salesman the customer seems to like best: He greets her as soon as she reaches his section of the case, in low, cheerful sincere fashion; but doesn't ask her what she wants, or doesn't start conversation until he has finished with the previous customer. He knows meats. He knows the quantities her family requires. And he knows the items her family likes. Often he has suggestions on the way to prepare meats. He treats the product with respect, and wraps her packages carefully. He finds little ways of showing her preferential treatment. Above all, no matter how small the purchase, he shows the customer a genuine appreciation.

Retail Advertising

The chief purpose of retail advertising is to make additional purchases by bringing customers into the store or by inducing them to telephone an order. Retail advertising, however, can do more than sell individual items. It can tell customers that the store is not only a good place to buy that item but is also a good place to make all their purchases of items that the store has to offer.

Advertising should build a reputation for a department (or in the case of a straight meat market, for the entire store).

THE STORY OF MEAT

NORTH SIDE'S FINEST FOOD STORE...

From Where Convenience Comes Shopping is Easy

GROCERIES

CARMATION MILK 6¢
12 cans

RED CROSS

SPAGHETTI and MACARONI 3 lbs. 10¢

LAST CLASS
CLOVER 12¢
PEAS 2 for 25¢
OLIVES 2 for 25¢

TOMATOES 1 lb. 10¢
PARD INN FOOD 3¢

PT-B-BT 2 Mgt. 27¢
APPLE SAUCE 2 1/2 gal. 15¢
SUBSTITUTE CLEANER 3 can. 14¢

DOMINO SUGAR 5-lb. 27¢

HORNEL'S SCUPS 2 1/2 gal. 19¢

ROAST BEEF

lb. 29¢

CHICKENS
Hens. 29¢
BROILERS 1 lb. 32¢
FRYERS 1 lb. 39¢
ROASTING 1 lb. 39¢

Premium HAMS 1 lb. 39¢

Trout 1 lb. 24¢

HALIBUT 1 lb. 22¢

SHRIMP 1 lb. 29¢

SHRIMP 1 lb. 29¢

LEG O' LAMB 1 lb. 25¢

DEVONSHIRE 1 lb. 35¢

SWIFT'S "ONION" BACON 1 lb. 31¢

BEEF LIVER 1 lb. 25¢
VEAL ROAST 1 lb. 24¢
LARD 2 1/2 lb. 27¢
PORK ROAST 1 lb. 24¢

SMOKED LIVER SAUSAGE 1 lb. 18¢

SWIFT'S BOLOGNA SAUSAGE 1 lb. 16¢

Corried Beef 1 lb. 17¢

FINER FOOD STORES

BUTTER 1 lb. 37¢

WAX CHEESE 2 lb. 21¢

STRICTLY FRESH EGGS 3 for 27¢

AMERICAN LOAF CHEESE

24¢

SAVE POTATOES

35¢

SPINACH 1 lb. 10¢
ORANGES 1 doz. 35¢
CABBAGE 1 head 15¢

CAULIFLOWER 1 head 15¢

BEETS 2 lb. 9¢

MELONS 1 lb. 29¢
KHUBARS 3 lb. 10¢
CHERRY BART 2 bin. 23¢
CHERRIES 1 lb. 19¢

Baked Foods . . . Fresh Daily

GOLDEN FLAKE DOUGHNUTS doz. 15¢


PARKER HOUSE ROLLS doz. 17¢

STRAWBERRY PIES each 35¢
MUFFINS doz. 27¢
COFFEE CAKE each 37¢

A departmental layout makes the advertisement more interesting—easier to read—and sells the department as well as the individual items.

This advertisement gives considerable space to meats and lists 18 meat items, yet it does not create the impression that the store has a wide variety in meats because the meat items are scattered.





e for FOOD Shoppers

SALES FRIDAY and SATURDAY, AUGUST 13th and 14th

<p>14c</p> <p>0c</p> <p>15c</p> <p>17c</p> <p>each 35c</p> <p>each 25c</p> <p>each 33c</p>	<p>SHREDDED WHEAT PACKAGE 11c</p> <p>VERMONT MAID MAPLE SYRUP 21c</p> <p>PINEST GRANULATED SUGAR 10 LB. SACK 63c</p> <p>SEEDLESS RAISINS 2 Lb. Pkg. 23c</p> <p>ROASTING CHICKENS 5 Lb. Roaster (Fryer and 1/2) 39c</p>	<p>CAKE FLOUR 25c</p> <p>RINSO 23c 9c</p> <p>LUX TOILET SOAP 3 20c</p> <p>VINEGAR 23c</p> <p>LIBBY'S PORK AND BEANS 10c</p>	<p>LIBBY'S 10c</p> <p>LIBBY'S 19c</p> <p>LIBBY'S 19c</p> <p>LIBBY'S 19c</p>
<p>BAKED HAM 40c 43c 65c</p> <p>ROUND STEAK and ROASTS 38c 33c</p> <p>BAKED LOAF 35c</p> <p>JEWEL 15c</p>	<p>STEAK, TENDERLOIN 38c</p> <p>LIVER CHICKEN 33c</p> <p>BOILING BEEF 17 1/2c</p> <p>CREAMY BANANAS 3c</p>	<p>LIBBY'S MILK 19c</p> <p>Overhead BUTTERMILK CUSTARD BISCUITS 10c</p> <p>OLD SPANISH 3c</p> <p>CREAMY BANANAS 3c</p>	<p>Outstanding Everyday Features on Our Popular Sunday Meat Markets</p> <p>Swift's Premium Hams 30c 2c 55c</p> <p>BACON 27c</p> <p>PORK CHOPS 28c 31c</p> <p>ROASTS 28c 31c</p> <p>YELLOW CHEESE 30c</p> <p>Luncheon Meat 38c</p>

Fill Your Shopping Bag with BARGAINS

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The combination store should also feature meat in advertising, because women plan their meals around meat. A satisfied meat customer will patronize a store even though she may not be so well pleased with the other departments; while a dissatisfied meat customer will often leave, even though other departments satisfy her.

Meat Department Layout

Because meat items claim \$1.00 out of every \$3.00 spent in stores for food, meats should be grouped together and given preferred position, in line with their importance. Grouping meat items together in the advertisement is often a help without additional space or position. Contrast the two advertisements shown on page 196. The same number of items is featured in each. Meats occupy about the same total space. But the departmental arrangement leads readers to believe that one store is a much better place to buy meats than the other. Similar grouping of other products should be used for other departments.

“Copy” Suggestions

Other important elements with reference to the make-up of advertisements are:

1. Select for leading items products that are used by nearly all families and are bought frequently. This gives the advertisement a wide appeal.
2. Occasionally advertise unusual items, such as smoked tongues, brains, ox tails, and kidneys, to build

THE STORY OF MEAT

the store's reputation for variety. These should be shown in smaller type because only a small percentage of customers will be interested.

3. Give customers a choice of items in different forms, whenever possible, or suggest ways to prepare them. Examples:

Blank Brand Hams, whole or half —XX¢ lb.

Bake and serve with pineapple.

Blank Brand Ham Center Slices —XX¢ lb.

The right size to broil or fry.

4. Price items in units when possible. If necessary, show price per pound beneath. Example:

Blank Brand Broilers, all over X lbs.—XX¢ ea.

Blank Brand Bacon— $\frac{1}{2}$ -lb. pkg. —XX¢

Assorted cold cuts—8 slices for XX¢

Price per pound—XX¢

5. Select well-known products and use the brand name.

6. Include a selling description whenever possible so that price is not the only appeal. Example:

Blank Brand Loin Veal Chops

Make a tender, meaty dish.

7. Occasionally use institutional copy. A small block of copy can cover a wide range of subjects—deliveries, personnel news, new items, recipes, equipment, etc. Example:

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“Our last delivery starts at 4 p.m.; so remember you can call us when shopping or at bridge, and your meat will be delivered in time for dinner.”

8. Illustrations and attractive layout aid greatly in winning attention. Many cuts of illustrations are available from meat packers' salesmen.

Above all, store displays should feature the advertised items.

Retail Meat Cutting

One of the most important problems of the retail meat business is proper selection of wholesale cuts which meet the requirements of the store's customers. It is important that the retailer select the quality that fits the purchasing power of his neighborhood. Moreover, certain neighborhoods require extra cuts.

For example, in a low income section there is usually a stronger demand for forequarter cuts, chucks, plates, etc., which makes it inadvisable to attempt to sell equal proportions of all cuts. To meet this situation, extra cuts in addition to carcasses should be bought as needed to balance the selling. In a higher income neighborhood there is usually a larger demand for better quality and for the preferred cuts such as loins and ribs. Here, too, the buying of extra cuts of the quality that fits the community is advisable. A dealer who confines his purchases to straight carcasses and tries to sell the meat from these carcasses is faced with the problem of profitably sell-

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ing all the cuts. Therefore, it is advisable to buy extra cuts as well as carcasses.

There is a difference in wholesale cuts in various sections of the country because of the difference in the retail cutting methods. It is fortunate that while, generally speaking, cutting methods vary, there is a fair degree of uniformity in a majority of the more important markets. The accompanying wholesale beef cut chart indicates the similarity between the two largest markets—Chicago and New York.

Efficient Cutting Essential

The problem of meat cutting does not end with the wholesale cuts. Indeed, the retail meat business is distinguished from other forms of retailing in that most of the goods handled are not sold in the form in which they are received. It is necessary first to divide or cut them into smaller, specially shaped and prepared retail units. A highly specialized skill is therefore needed to eliminate waste while satisfying the demands of customers.

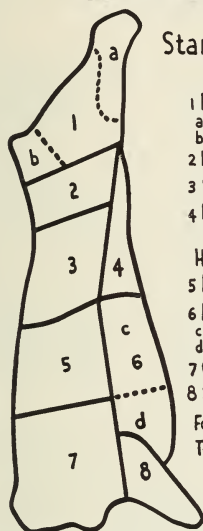
Why Cutting Tests?

With packaged foods there is no shrink. One unit is like another. The grocery department buys 48 cans of beans and sells 48 cans. The retailer's cost is set and from it he can determine his profit. In retailing meat the situation is different, for several reasons:

1. Retailers cut carcasses and wholesale cuts in dozens of different ways.

Standard Wholesale Cuts

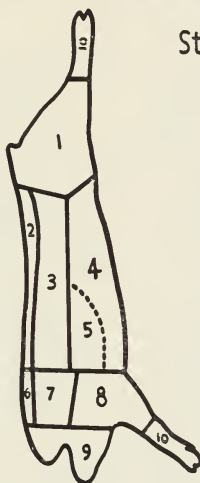
BEEF



Standard Cuts Chicago Style

1 Round	24%
a Hind shank	
b Rump	
2 Loin end	9
3 Short loin	8
4 Flank (Suet)	4
	<u>4</u>
Hind quarter	49
5 Rib	9
	<u>9</u>
6 Plate	12
c Navel end	
d Brisket	
7 Chuck	26
8 Shank	4
	<u>4</u>
Fore quarter	51
Total side	100%

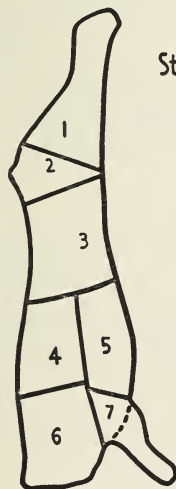
PORK



Standard Cuts Chicago Style

1 Ham	19%
2 Fat back	3
3 Loin	13
4 Bacon	16
5 Spareribs	3
6 Plate	2
7 Boston butt	6
8 Picnic	8
7-8 Shoulder	
9 Jowl	3
10 Foot	3
Trimming	4
Lard	<u>20</u>
	100%

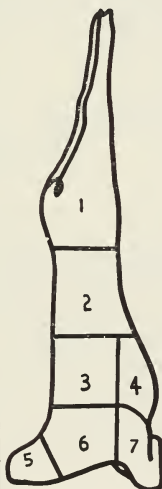
VEAL



Standard Cuts Chicago Style

1 Leg	20%
2 Rump	17
3 Loin	10
1-2-3 Saddle	
4 Rib	10
5 Breast	15
6 Shoulder	18
7 Shank	10
4-5-6-7 Rack	<u>10</u>
	100%

LAMB



Standard Cuts Chicago Style

1 Leg	34%
2 Loin	12
3 Rib	12
4 Breast	10
5 Neck	6
6 Shoulder	20
7 Shank	<u>6</u>
	100%

THE STORY OF MEAT

2. The style of "cutting" carcasses and wholesale cuts varies with the section of the country, as previously explained.

3. The demand for certain retail cuts varies with the season.

4. The demand for certain cuts varies with the community.

5. There are vast differences in the quality, conformation, and weight of carcasses.

6. Finally there are seasonal changes in kind and type of animals marketed.

Tests Eliminate Guesswork

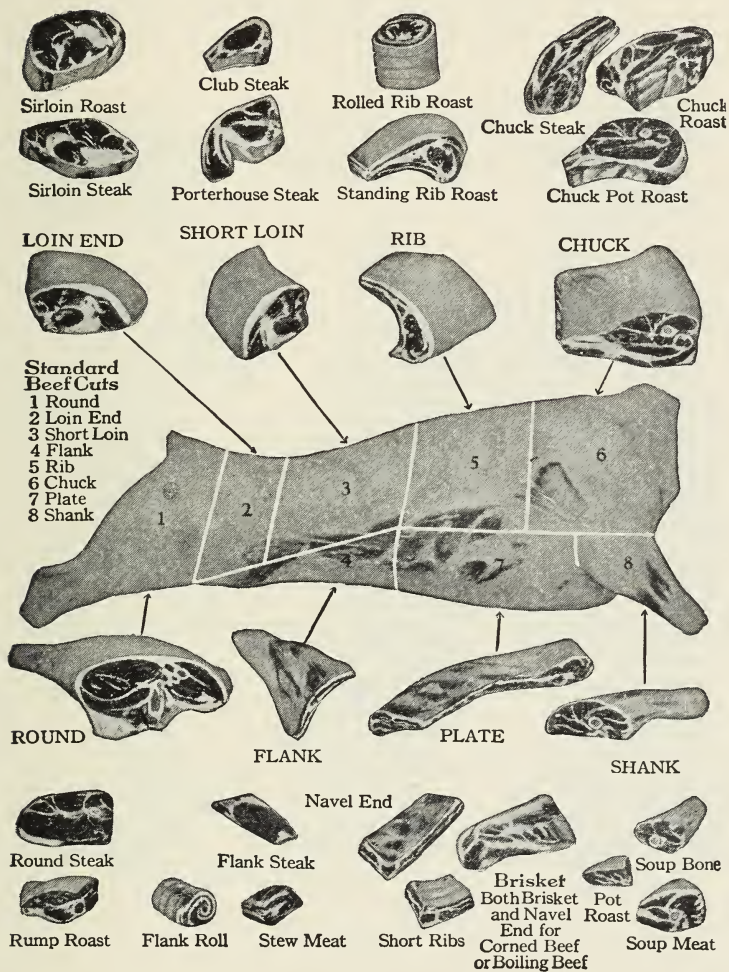
Every dealer has his own way of cutting. He has a variety of reasons for cutting in his own particular way. Some dealers say the trade demands it. Others declare that by their cutting methods they realize more money. Some feel they can sell certain weights of carcasses more profitably. Thus it is difficult to work out or to set up an accurate schedule of retail cut-out percentages and selling prices that will be correct for all seasons in all localities and for all types of beef, veal, lamb, and pork.

An investigation very likely would reveal that much retail meat pricing is done by guess, although a fair degree of accuracy has been attained through experience. This problem is very important to retailers, and it is recommended that cutting tests be made.

Cutting tests eliminate all guesswork as to profits that can be made out of certain types of carcasses

Beef Carcass and Beef Cuts

(Chicago Style)



Hog Carcass and Pork Cuts

(Chicago Style)



Ham; mildly cured and delicious

- | | |
|-----------------------|-------------------|
| 1 Ham | 5 Bacon |
| 2 Fat Back | 6 Clear Plate |
| 3 Loin | 7 Shoulder Butt |
| 4 Spareribs | 8 Picnic Shoulder |
| 7, 8 Skinned Shoulder | |



Bacon; dry cured with salt and sugar, and smoked, giving it a sweet, delicate flavor

Fresh Ham; desirable for Steaks and Roasts



Ham; cured and smoked



Fat Back; used for Salt Pork and Paprika Bacon



Loin; usually sold as Pork Chops or Pork Roasts



Spareribs; sold fresh, pickled, or in dry salt



Bacon; trimmed to shape, cured and smoked



Skinned Shoulder; may be sliced into Pork Steaks or used as Roasts



Picnic Shoulder; cured and smoked



Clear Plate; used for Salt Pork

Shoulder Butt; used for Steaks and Roasts



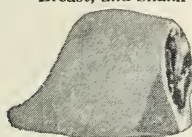
Lamb Carcass and Lamb Cuts

(Chicago Style)

- | | |
|--------|------------|
| 1 Leg | 4 Breast |
| 2 Loin | 5 Shank |
| 3 Ribs | 6 Shoulder |
| | 7 Neck |



Boneless Lamb Roll;
Consists of Shoulder,
Breast, and Shank



Lamb Leg for Roasts
and Steaks



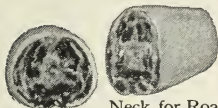
Lamb Steak
cut from
Leg



Lamb Ribs
for Roasts

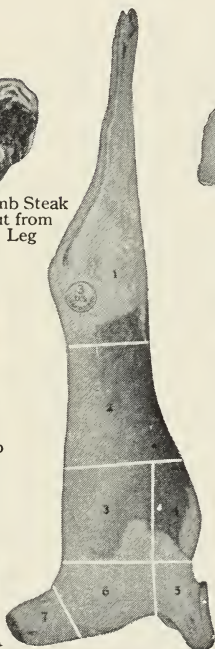


Lamb Rib
Chop



Neck Slice for
Braising

Neck for Roast,
Broth, or Stew



Chops from the shoulder
are large and meaty



Lamb Loin
for Roasts



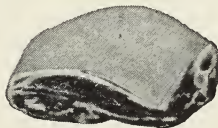
Lamb Loin
Chop



Breast for Roasts
or Stew



Shank for Roast,
Stew, or Broth



Shoulder for Chops
or Roasts

THE STORY OF MEAT

and cuts at a certain price. It is particularly advisable to make cutting tests when a different grade or weight of animal is being sold. It is easy to make these tests, in accordance with the following rules:

How to Make Cutting Tests

Cutting tests may be made for the entire side—all at one time—or on a wholesale cut as the retail cuts are made.

1. Draw up a form itemizing each retail cut (as illustrated on the opposite page).

2. Weigh the entire side and record the weight.

3. Cut up the side into wholesale cuts and weigh each cut. Then calculate the percentage each cut is of the entire side. These percentage figures are about the same for sides of a given weight and grade, and may therefore be used for future reference, saving the work of weighing. This may be done as long as the same grade and weight of beef is being sold.

4. Cut the wholesale cut into retail cuts according to individual style of cutting used in that store. Weigh and record each cut. Post the amount of money obtained from each retail cut—both per pound and total money obtained.

5. Add the total amount of money received from the sale of all cuts and deduct from this the cost. This gives the gross profit. Divide the gross profit by the total amount of money received from the sale of all cuts. Then multiply by 100 to get the percentage.

Gross Cut-out Chart for Beef

Weight of Side _____ lbs. at _____ c lb.— \$ _____		Cost of Side	
	<i>Weight in Lbs.</i>	<i>% of Total Side</i>	
			<i>Sale Price Per lb.</i>
			<i>Total Money Sales</i>
HINDQUARTER:			
ROUND	_____	_____	
		Round steak	_____ \$ _____
		Heel	_____
		Rump	_____
		Shank	_____
		Bones, etc.	_____
		Total	=====
LOIN	_____	_____	
		Sirloin	_____
		T-Bone	_____
		Short steak	_____
		Bones, etc.	_____
		Total	=====
FLANK AND KIDNEY	_____	_____	
		Flank steak	_____
		Kidney	_____
		Ground beef	_____
		Bones, etc.	_____
		Total	=====
FOREQUARTER:			
CHUCK	_____	_____	
		Arm roast	_____
		Chuck steak	_____
		Chuck roast	_____
		Stewing beef	_____
		Ground beef	_____
		Bones, etc.	_____
		Total	=====
RIB	_____	_____	
		Rib steaks	_____
		Rolled roast	_____
		Stand. roast	_____
		Short ribs	_____
		Bones, etc.	_____
		Total	=====
PLATE AND SHANK	_____	_____	
		Short ribs	_____
		Plate roll	_____
		Stew. beef	_____
		Ground beef	_____
		Bones, etc.	_____
		Total	=====
TOTAL FOR SIDE	_____	_____	
		Cost of side (Subtract)	_____
		Profit (GROSS).....	=====
PER CENT GROSS PROFIT ON SELLING PRICE.....			
(Divide gross profit by Total Money Sales and multiply by 100 to get percentage.)			

THE STORY OF MEAT

This gives the per cent of gross profit on the entire carcass.

The suggested form shown also permits the same information to be obtained on each wholesale cut. Cut-out tests may be made on one wholesale cut at a time. It is advisable to make tests to know the gross profit on each cut because this information helps the dealer to know when and what extra cuts to buy. It also is an excellent guide in adjusting retail prices.

Figure Profit on Selling Price

When the cutting test has been made, the gross profit percentage figure arrived at shows the percentage of profit based on the selling prices used for each cut. It is a mistake to figure profits based on cost prices. Instead, this figure should be in terms of the selling price.

How to Adjust Prices

As explained in Chapter XII, wholesale and retail meat prices are determined by two major factors: the purchasing power of consumers and the supply of meat coming to market. When there is an increase in the wholesale price of a carcass or wholesale cut, it becomes necessary for the individual retailer to adjust his prices in accord with the market. This is often a difficult matter; because he has not only to maintain his competitive position with other retailers, but he must also make sure that he can sell his goods at the prices he sets.

THE RETAIL TRADE

The retailer's problem is to sell meat on such a basis that his total income from the sale of various cuts will, over a period of time, yield a profit over the cost of the carcasses and wholesale cuts he buys. It is seldom possible to increase the price of all retail cuts in the same proportion. Suppose that the price of wholesale beef advanced 10%, an increase of 10% on all cuts would provide the same margin, but it is not likely that all prices can be raised in the same proportion. It may be that no increase can be obtained for boiling beef and for some of the other parts of the animal. Furthermore, certain retail cuts may be moving slowly for the time being. The total increase in cost, therefore, must be borne by only some of the cuts, if the retailer is to sell the meat at the same rate of profit.

Careful Figuring Necessary

It is important to do some figuring, adjust retail prices so that the meat moves into consumption at the prices asked and still brings the desired gross profit. This means that the cuts for which there is exceptionally good demand will have to be advanced in price more than cuts in medium demand in that community, while the price of some slow-moving cuts perhaps cannot be raised at all. In adjusting the prices, the percentage figures are helpful.

Another important thing in connection with pricing is that the retail dealer must watch market prices closely, so that he can promptly adjust his own

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prices. Wholesale quotations are probably the best guide, although the prices of retail competitors measure the same thing. If, for instance, there is a sudden drop in wholesale meat prices because of a large supply or greatly reduced demand, the retail dealer who fails to lower his prices promptly will find many of his customers turning to other stores where prices have been adjusted.

On the other hand, if the general market shows a sharp rise because of greatly improved demand or a falling off in supply, the retailer who does not increase his prices promptly will find that when he has sold his meat there will be insufficient money left from his sales to purchase new supplies at higher prices.

Therefore, the alert retail dealer strives to keep his prices in line with "replacement values."

Consumer cuts, well described and carefully priced, aid the housewife.



THE RETAIL TRADE

Watch Supply and Demand

The profit shown by a retail meat business often depends on the dealer's ability to use his knowledge of meats to educate his customers to a realization of the value of all cuts of meats and not just to sell a few of the best known items. Good personal selling, display, and advertising enable the dealer to do this. Furthermore, many alert dealers assume leadership by paying close attention to supply and demand. With each season there is a change in the predominant kind and type of meat animals coming to market. A large supply of one type of animal almost invariably makes that kind a good value with excellent sales possibilities. Meat packers also occasionally have a surplus of certain cuts which alert dealers can take advantage of and sell at splendid profits.

Most housewives welcome suggestions from the man behind the counter on what to serve. They also like information on the week's best values. The dealer who is quick to adjust his business to changes in the supply, gains and holds the confidence of his customers.

Study Questions

1. How does a retail meat business differ from other retail businesses?
2. Mention some of the items which are sometimes overlooked by the retail meat dealer in keeping bookkeeping accounts.

THE STORY OF MEAT

3. Why is good salesmanship more important in the meat department than in other departments in the store?
4. Why is it important to use a well-known brand when advertising?
5. Why is a weekly meat report an important record?
6. Mention three ways to use displays to get attention for individual items in a meat case.
7. Describe a good method of informing a customer that the stock of the item she asked for is temporarily out.
8. Make up your own example of how a retail meat salesman can put appetite appeal into a selling suggestion.
9. What are four characteristics of the kind of meat salesman customers like best?
10. Why should every retail meat dealer make his own cutting tests?
11. Should gross profit be figured on the basis of cost or selling price? Why?
12. Why is it important to buy extra cuts and not confine purchases entirely to carcasses?

CHAPTER XII

Price Determination

Factors Which Affect Wholesale and Retail Prices

THE retail meat dealer is vitally interested in prices, particularly in day-to-day and week-to-week fluctuations. Two of his basic problems are the price he must pay for the meat he buys and the price he can charge.

Fresh Meat Must Be Sold Promptly

Because of the perishability of meat and most meat products, meat prices are immediately affected by changes in supply and demand. In some businesses it is possible to withhold a product from the market if prices are not right, but in the meat business any such tactics would soon result in ruin for the dealer or the meat packer who practiced them.

If a dealer or a meat packer has too large a quantity of some particular kind of meat, he must lower prices so that the meat will move promptly into consumption; otherwise it will deteriorate on his hands. If supplies become short, however, the retailer finds it increasingly difficult to buy all that his customers want. There is not enough meat to go around at the old prices. Unless prices advance promptly the seller will find himself without enough

THE STORY OF MEAT

meat to supply some of his regular customers. A customer would soon cease to be "regular" if he could not buy meat when he wanted it.

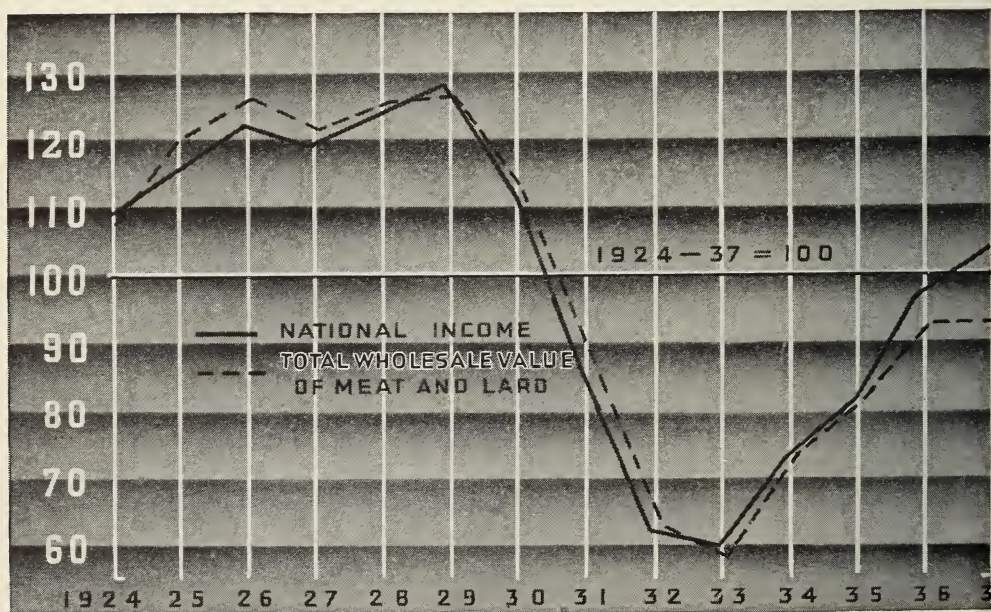
The supply of meat coming to market depends on the number of cattle, hogs, and lambs farmers produce and send to market. Sometimes there is a shortage and sometimes a surplus; but, whatever the supply, it moves to market promptly and has to be sold at a price that will attract buyers for all the meat produced.

Importance of Consumer Income

A second factor that helps determine meat prices is the amount of money consumers have to spend—

The total amount of money paid by retail dealers for their meat supply has paralleled closely the total pay checks and other income of consumers.

Sources for charts on this and following page: National income from National Bureau of Economic Research and U. S. Department of Commerce. Farmers' receipts and total wholesale value from U. S. Department of Agriculture data.



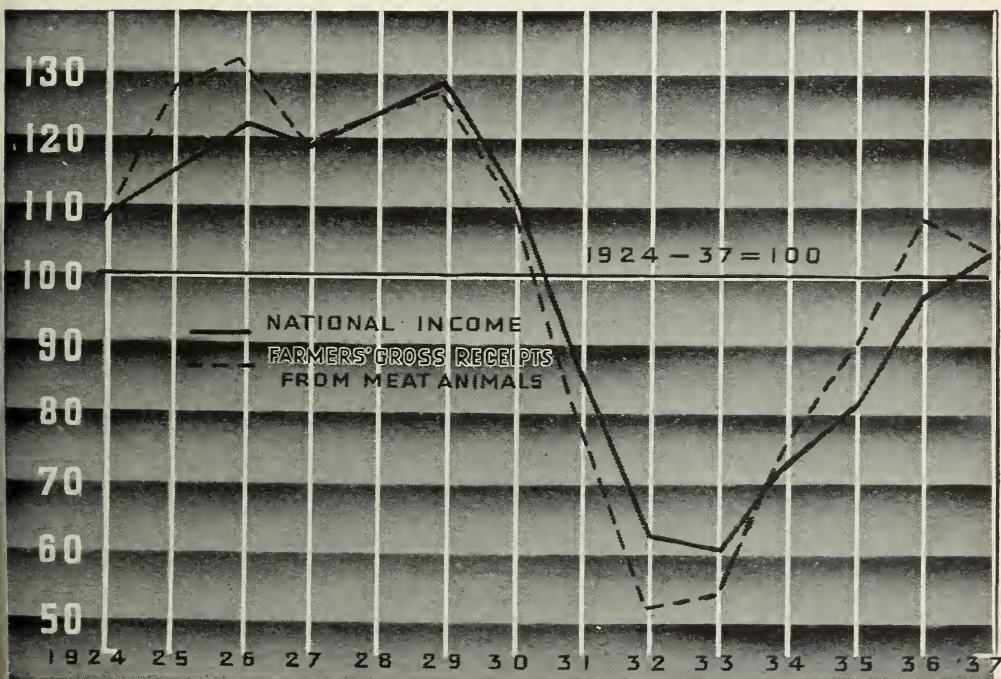
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that is, their incomes. If there were no changes in the supply of meats to be sold, then prices would go up or down whenever the public had more or less money to spend on meats.

Therefore, short supplies and increasing consumer incomes make meat prices rise, while large supplies and reduced incomes are promptly reflected in falling meat prices. Consumers have just so much money to spend for meats and the price level is quickly adjusted so that the whole supply will find buyers.

Any retail meat dealer soon learns at any given time what retail price must be put on any kind of meat if he is to sell out his stock. With this knowledge in mind he shops around when he is buying meat from the wholesale dealers with whom he trades. The

The total receipts of farmers for their meat animals also show a close correlation with the total income of consumers.



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wholesale branch houses do not have to be open long on any day before they know through the dealers what the demand is for various kinds and qualities of meat. They have to adjust their prices accordingly.

Retailers (Demand) Bargain with Wholesalers (Supply)

If you listen to the conversation between dealers and branch house salesmen any day, you will hear remarks like these:

“What are you *asking* for choice steer today?”

“What do you want for pork loins?” After the price is quoted, the answer may be: “You can’t sell me at that price. I can buy pork loins cheaper than that. There’s a lot on the market.”

“Our price on hams is XX¢. There has been a good demand for hams and this has caused the price to go up $\frac{1}{2}$ ¢.”

Of course, this bargaining conversation is very similar to the sort of conversation which goes on in a dealer’s own market. The retail dealer has heard the conversation of many housewives before he goes to market for his own requirements. The branch house manager hears the conversation of many retail dealers. It is as a result of the expression of this consumer demand coming from housewives and communicated by the retail dealers that, daily and even hourly, wholesale prices for meat shift up and down.

An intelligent dealer can adjust himself to the situation which results, if he is a careful buyer and if he can sell to his customers those cuts of meat which he can buy at a satisfactory price.



Retail dealer selecting his supplies at a meat packer's branch house.

Happenings Which May Affect Prices

An alert retail dealer can sometimes get advance information of what is likely to happen to meat prices. For example, several days of large receipts of live-stock at slaughtering points will mean large receipts of fresh meat at wholesale points for the next week or ten days. The normal demand is not likely to absorb this meat unless prices go down.

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In the same way, if a factory is, for any reason, reducing its pay roll, the demand for meat in that community is likely to lessen, and anyone with meat to sell must shade his prices accordingly unless he wants to find out from bitter experience how fast fresh meat can deteriorate.

Suppose, though, that a flood has interfered with railroad schedules so that the normal supply of meat will not be able to reach a given market. Prices will go up to conserve the supply, if purchasing power has not been greatly impaired.

A drought, accompanied by shortage of feed in a livestock-raising area in this country, will mean that more than the normal supply of livestock will have to be sent to market at once. On the other hand, low feed prices may enable livestock raisers to withhold for a time their cattle, hogs, or sheep from the market, either for breeding purposes or perhaps to increase their weight before marketing.

Purchasing Power, a Major Factor

Out-of-the-ordinary happenings of this kind, however, occur rather rarely, and it is not always easy to estimate correctly how they will affect prices in the small area with which an individual retailer is concerned. The retailer should never allow himself to forget that the prices he can get for his meat depend primarily on his customers' wants at that time, on the amount of money they have to spend, and on the prices being asked in other markets in his neighbor-

PRICE DETERMINATION

hood. The retailer should know as exactly as possible each day how much he can charge for various cuts of meat, or, better yet, how much meat he can sell, provided he can offer it at a certain price. Then he should buy his own supplies accordingly. One way to find out what customers in any neighborhood will pay for meat is to watch their reaction and listen to their conversation inside a meat market. A better way, of course, is to keep accurate sales records which will show how sales of various items fluctuate with price changes. The keen retailer then buys as much meat as his customers will take at prices that will show him a profit. The right price to charge for meat, once he has it on hand, is the price at which a retailer can dispose of his stock without having any of it left to deteriorate in value. No one in the meat business ever made any money by not selling meat.

Holidays and Weather

In addition to the factors already mentioned, every retailer knows of other short-time and local influences which affect meat prices. Certain holidays affect consumer demand. Thanksgiving, for instance, is a time when people buy turkey instead of roast beef. Easter to many persons is traditionally a time to eat ham instead of some other sort of meat. Summer vacations make a difference to the retailer. If he lives in a community from which persons go on vacation trips in the summer, there will be a smaller population for him to serve during these months. If, how-



Mrs. Housewife and the amount of money she has available to spend for food, affect the prices at which meat is sold.

ever, he lives where visitors flock in the summer, his business will go up. Members of some religious groups abstain from eating meat during certain periods. Even the daily weather affects meat sales. Cold weather stimulates the appetite for certain kinds of meat. In hot weather women like to keep out of the kitchen. At such times, ready-to-serve specialties

should boom as the demand for roasts, chops, and steaks declines.

Pricing Individual Cuts

A special problem with respect to prices has to do with various meat cuts. The dealer cannot say that one cut from a side of beef cost him a definite amount of money. He must price all of the cuts from a larger piece of meat so that, first, he sells all of the meat; and so that, second, his total receipts will cover the cost of the meat, his costs of operation, and at the same time leave a margin for profit. Careful cutting tests, as described on Page 206, must be made at regular intervals. By means of these tests the dealer can determine the price at which to sell the various retail cuts in order to obtain a profit on the wholesale cuts he has bought.

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Problems of the Meat Packer

In any consideration of meat prices, it is necessary to have a general idea of the problems which face the livestock producer and the meat packer, as well as those which affect the retailer. In order to maintain a flow of livestock to market, meat packers buy for cash all live animals (except those sold to farmers for fattening), which come to central stock yards. Moreover, practically all of the livestock is sold on the day it arrives. If farmers could not be sure of a daily cash market for their livestock, many would find it necessary to stop raising meat animals or to decrease the number raised. The result is that the meat packer has no choice about the quantity of livestock available each day. That quantity is set for him by the number of animals farmers send to market.

Once a meat packer buys livestock he has to transform it into fresh meat at once. Meat packers have no facilities for holding or caring for many live animals, and they could not afford the expense even if they had the facilities. Once a meat packer has bought live animals he is in the same position as the retailer who has bought a supply of fresh meat. He has to transform the live animals into meat and sell the product at once. He cannot keep the meat off the market any more than the retailer can. He, too, recognizes that meat is highly perishable.

Problems of the Livestock Raiser

So far this chapter may sound as if the retailer and the meat packer are the only persons in the industry

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who have to work fast. The livestock raiser, however, is in an almost identical situation. When cattle, hogs, and sheep are growing to maturity, they tend to increase in weight each day and consequently to increase in value. But the week comes when they have reached their full growth, or when it costs more to put an extra pound on them than that pound will bring in the market. When this time comes the livestock producer has no choice; those animals must go to market. He cannot afford to let them stay at home "eating their heads off." If he continues to feed them, the feed bill will ruin him. If he stops feeding them, they lose weight and deteriorate in quality.

A livestock raiser does have one choice. He can send his livestock to market any day before they reach maturity, if prices "on the hoof" and prices

Livestock producers bargaining with buyer
for meat packing company.

for feed indicate to him that there will be a better profit in selling now rather than waiting until his livestock have grown heavier.

The meat packer has no choice. He buys the livestock which comes to market for the most



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reasonable price he can, processes it immediately, and then sells it promptly before it begins to deteriorate.

The retailer in this phase of the situation is slightly better off. He is not compelled to take meat off the hands of a meat packer. Actually, however, the retailer does not have much choice either. If he does not buy as much meat as usual, it is only because he does not believe his customers can afford to purchase the usual amounts from him at the prices he would have to ask. But if wholesale meat prices should fall, more meat would have to be bought because the retailer has to take care of those housewives who look to him for their meat supply. Having to say, "We don't have any of that today," is one of the quickest ways known to go out of the retail business.

How Demand Meets Supply

We thus come back to one of the central facts about meat prices. Meat prices are set by the supply and the demand. The retailer and the meat packer are really only the channel by which the demand of the consumer and the supply of the livestock raiser meet. Prices adjust themselves so that all meat animals raised reach the dining tables of the country.

Cost of Production

There is just one more point of some interest about meat prices. We have seen that the retailer has to sell at prices which will move his stock on hand. We have seen that the meat packer has to do likewise. We have seen that the meat packer has to buy all

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meat animals which come to market. We have seen that the livestock raiser has to sell his livestock when it reaches maturity. There is no economic law, however, which compels a livestock raiser to raise any given number of meat animals.

The livestock raiser, however, is at a disadvantage when he tries to control the size of his flocks and herds. It takes a year or two, or longer, for most kinds of livestock to mature; and so, when a livestock raiser considers whether to increase or decrease his production, he has to figure on what the supply and the demand will be at a considerable distance in the future. If the national income is going to go up, he knows that demand for meat will increase. On the other hand, conditions in livestock-raising areas may markedly affect the supply—depending on the duration and extent of droughts, on the prevalence of certain diseases, and on similar matters which it is difficult to forecast accurately.

The result of the decisions made by all of the livestock raisers in the country, based on their estimate of what the conditions of demand and supply are going to be, is that over a period of ten or twenty years meat prices tend to keep in line with costs of production. That is, farmers tend to raise meat animals in such numbers that over a period of years they recover their cost of production, plus a profit.

It should be borne in mind, however, that the price swings which are important to the retailer are



English country fair of the Middle Ages. At these markets the consumers bargained directly with farmers for livestock and other farm products.

those which last for much shorter periods: a month or a season or even two or three years. These price swings are commonly a result of changes in the supply of animals available and of purchasing power of consumers. They may not be accompanied by any change at all in cost of production.

Study Questions

1. How does the perishability of meat affect meat prices?

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2. How does consumer demand affect prices?
3. Does a meat retailer always pay the first price asked? Why?
4. Tell about some fairly recent happening which affected meat prices in the district where you live.
5. How should a dealer set the retail price for meat?
6. In what ways will the next important holiday be likely to affect meat prices in your city?
7. How does a dealer price individual cuts?
8. What are some of the price problems faced by meat packers? By livestock raisers?
9. How important is cost of production?

CHAPTER XIII

Meat Preferences and Habits of Consumers

| Necessity for Quality |
| and Sanitary Handling |

IN a country with as many different nationalities and religious groups as ours, we may well expect to find a wide variety of preferences and habits in the purchase and consumption of meat. Differences in meat consumption will be observed also in different sections, in different seasons of the year, and in accordance with changes in business conditions.

Consumption varies with regard to the kind, the quality, and the various cuts of meat.

1. Production of Livestock

There is no period in the more recent history of the United States when there was not considerable fluctuation in meat consumption. We can very naturally explain part of this by changes in the production of livestock.

2. Business Conditions

One of the peculiar facts about the meat industry is that the per capita consumption of meat in any one

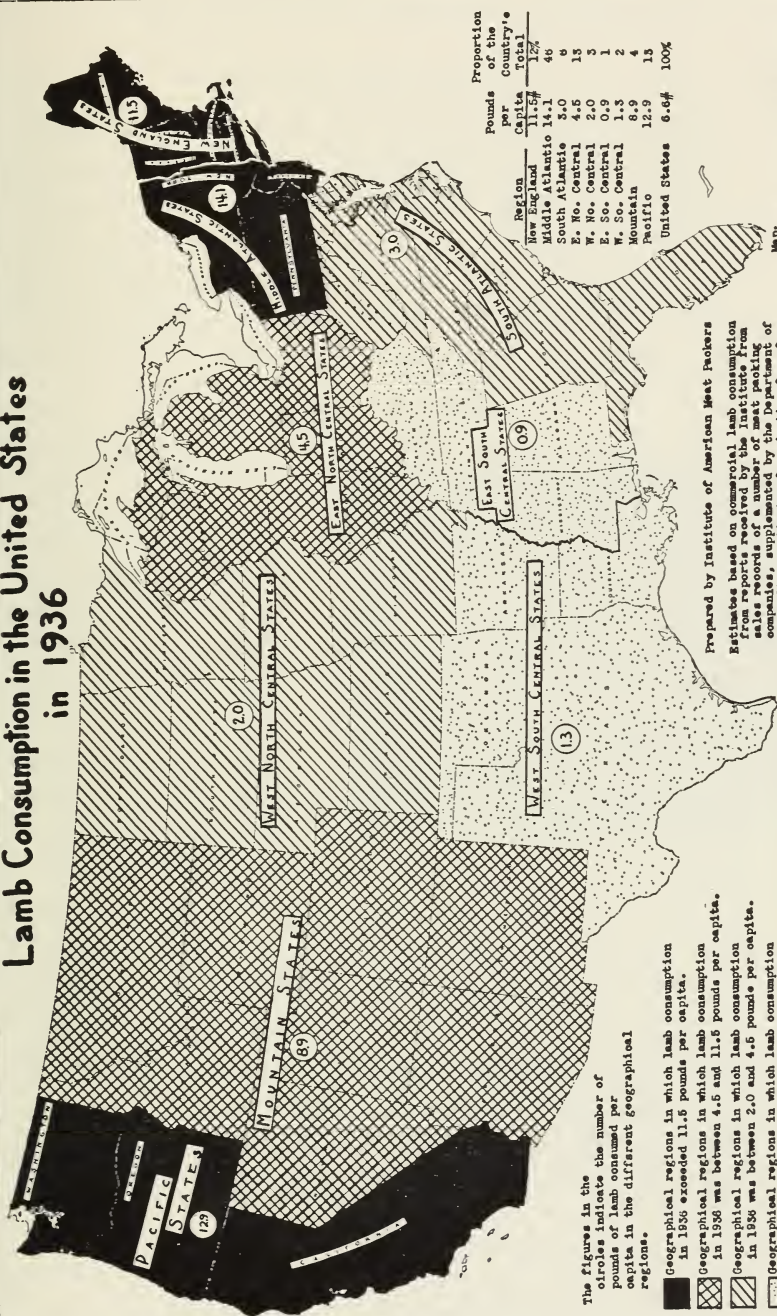
THE STORY OF MEAT

year does not vary with the business cycle, because all the meat that is produced is consumed. None of it is allowed to be wasted. A depression usually results in a greater relative demand for the cheaper grades of meat. A period of prosperity brings increased demand for the choicer kinds and grades of meat. Generally speaking, there is a smaller fluctuation in the consumption of beef than in that of pork.

3. Sectional Customs

In the various sections of the country, marked differences in the consumption per capita, and in consumer preferences can be noted. In the cities more beef and less pork and poultry are eaten than in the rural, or country, regions. Southern areas use much more pork and less beef than the North. The Western territory heads the list in the per capita consumption of beef, and the Western and North Atlantic together consume the largest quantities of veal, lamb, and mutton. The majority of beef and veal carcasses are used in the Northeastern states; that is, east of the Mississippi and north of the Ohio River and Maryland. The North Atlantic section alone takes care of most of this. Lamb shows an even larger variation of consumption per capita in various areas, some of them consuming 10 or 12 times as much lamb a person, as other sections. During 1936, residents of New York, New Jersey, and Pennsylvania ate an average of 14 pounds of lamb, or nearly half of the entire country's lamb supply.

Lamb Consumption in the United States in 1936



The figures in the circles indicate the number of pounds of lamb consumed per capita in the different geographical regions.

- Geographical regions in which lamb consumption in 1936 exceeded 11.5 pounds per capita.
- Geographical regions in which lamb consumption in 1936 was between 4.5 and 11.5 pounds per capita.
- Geographical regions in which lamb consumption in 1936 was between 2.0 and 4.5 pounds per capita.
- Geographical regions in which lamb consumption in 1936 was less than 2.0 pounds per capita.

Prepared by Institute of American Meat Packers
Estimates based on commercial lamb consumption from reports received by the Institute from sales records of a number of meat packing companies, supplemented by the Institute's own estimates of production from farm and local retail sheep and lamb slaughter.

Region	Pounds per Capita	Proportion of the Country's Total
New England	11.5#	12%
Middle Atlantic	14.1	46
South Atlantic	3.0	6
E. No. Central	4.5	15
W. No. Central	2.0	3
E. So. Central	0.9	1
W. So. Central	3.0	2
Mountain	8.9	4
Pacific	12.9	13
United States	6.6#	100%

Map:

Courtesy U. S. Geological Survey

THE STORY OF MEAT

4. Economic Position

The economic position, or wealth, of consumers influences their purchase of meat. The higher-income groups use larger quantities of meat per capita. Beef has wider variations in grades than pork, and therefore consumers with lower incomes are almost always able to supply their wants by purchasing the less demanded grades and cuts of beef.

5. National Differences

In addition to these factors, national and religious groups have preferences based upon custom or tradition. The average Englishman consumes approximately as much beef as the American, less pork, and much more mutton and lamb. He objects to bacon that is very fat, and customarily requires all pork to be quite lean. Despite this, the Englishman usually insists upon beef and mutton which contain considerably more fat than the average European asks for. It is not surprising that in Great Britain itself cattle breeds which can produce a highly finished or prime grade of meat are extremely popular.

Very little mutton and lamb is eaten by the Frenchman. Beef, veal, and pork are his most important meat foods. In every case he insists upon having his meat relatively lean. A great many Frenchmen solve their cooking problem by purchasing quantities of fat separately in order to give the lean meat which they use additional flavor. Usually they use fairly small cuts of beef obtained from light, unfattened

MEAT PREFERENCES AND HABITS

carcasses. While we might consider such beef as somewhat lacking in quality, we cannot say the same of the veal which the Frenchman generally selects. The veal must be of the very highest grade, obtainable only from milk-fed calves. Indeed, the faintest sign of redness in veal will make the Frenchman refuse it. The little pork that the French people use is quite lean, even though they use comparatively large quantities of lard.

By far the most popular meat among Spaniards is pork. It has been found that the kind of pork they customarily purchase comes from swine which we might consider somewhat thin. Beef, which is second in popularity, must come from fairly young and light carcasses that have not very much fat. Mutton and lamb run a poor third, as far as Spanish taste is considered.

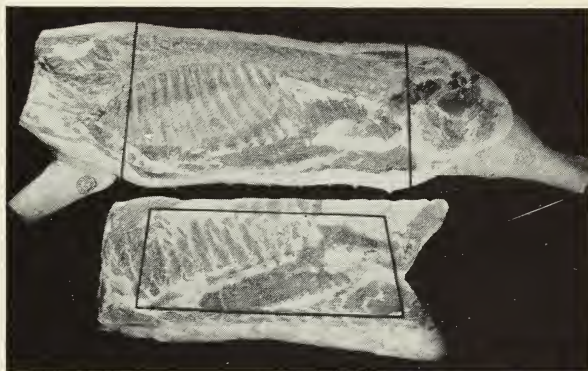
The German generally eats little mutton and lamb. Pork is eaten to a large extent, and beef in fair amounts. Salted and cured pork products, bacon and ham among them, enjoy great favor.

English bacon (marked on entire side of pork)
is made from the "middle" of a Wiltshire side.

(Fore)

(Middle or Bacon)

(Gammon)



Choice American bacon includes only that portion
of the belly indicated in lower half of illustration.

THE STORY OF MEAT

6. Religious Regulations

The influence of religious groups is also felt in the operations of the meat trade. For example, in large cities particularly, the demand is great for meat handled in accordance with Jewish dietary laws, or "koshered." This feature of consumer demand is most characteristic of New York City, where the plants handle about one-fourth of all the steers koshered in the United States. Comparison of the Jewish population by states indicates that most of the remainder is consumed in the other cities of the Atlantic seaboard, and that only a relatively small number are koshered for use in the inland cities.

Meat for the Jewish trade must come from animals slaughtered according to the rules of Shehitah (the ancient dietary rules). While we usually think in terms of beef when koshering is mentioned, yet lamb, mutton, veal, and even poultry are dressed in this manner. Pork is not used at all.

Kosher carcasses are identified by a certain

Kosher stamp of approval.

Hebrew marking on the breast, inside the rib, the chuck, and any part which may be desired by the kosher trade. Contrary to belief, both forequarters and hind-quarters of the meat animals may be used as meat provided they are



MEAT PREFERENCES AND HABITS

properly koshered; but since all veins must be removed before the meat is delivered to the consumer, the Jewish trade usually confines itself to the fore-quarters, from which the veins can be removed with a minimum of tearing the flesh.

The Jewish law has specific restrictions as to the use of this meat. It must be inspected by orthodox rabbis (or their authorized representatives) for final approval.

The meat must be sold by the retailer within 72 hours of the time it is killed, or it must be washed and reinstated by a representative of the synagogue every subsequent 72 hours; but at the expiration of 216 hours after time of slaughter, it is declared "treifah" and automatically rejected for kosher trade.

The Jewish law also provides that before kosher meat is cooked, it must be soaked in water for one-half hour, after which it is placed on a perforated board in order to drain off the excess moisture. The meat is then sprinkled with salt. One hour later it is thoroughly washed and remains kosher as long as it is fresh and wholesome.

These restrictions account largely for the fact that the bulk of the beef consumed in the Jewish trade in New York City is shipped East alive, and dressed at plants adjacent to this market.

As for other religious groups, it may be pointed out that Catholics and certain others have fast days (like Fridays) and fast periods (like Lent) when they eat no meat.

THE STORY OF MEAT

U. S. Department of Agriculture Survey

A survey made by the U. S. Department of Agriculture some years back, when 4,466 housewives were interviewed, furnishes some additional interesting data on the subject of consumer habits and preferences. The following items are among the most significant: In answer to the question as to the quality of meat their dealers handle, more than 34 per cent of the housewives queried stated their dealers handle the best quality, and 43.1 per cent replied that they handle good quality. The inference from these replies is that the housewives questioned were not thinking in terms of the standard grades. These women were probably speaking in relative terms; that is to say, they felt that the meat they were purchasing was "best" or "good" in comparison with the rest of the meat available in their communities.

Quality as a Factor

Chicago receives more well-fed, quality cattle than most markets. Yet, even if the Chicago market receipts may be regarded as typical of the grades of cattle marketed throughout the country, it is apparent that cattle which are officially graded in classes prime and choice are not the only ones which produce beef of a character highly acceptable to many housewives.

For beef, the great bulk of meat available is in the medium and good grades. Although they are not the highest grades, they are the qualities which have the largest market and which most retailers carry. Also, it must be kept in mind that the medium and good

grades, properly prepared, have the same healthful and nutritious qualities as the upper grades.

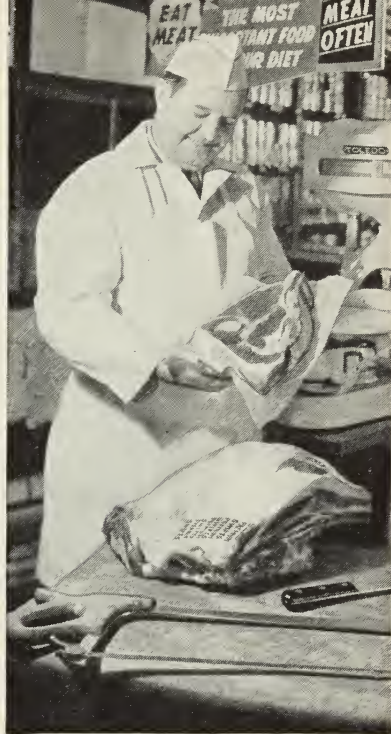
Reasons Given for Trading at a Particular Store

The U. S. Department of Agriculture survey showed there was a decided tendency for the more well-to-do to trade longer with one dealer, but 56 per cent of the housewives of the middle class had traded with their current dealer only two years or less.

Of special interest to retailers are the reasons for preference. Forty-four and two-tenths per cent of the housewives of the American whites preferred the quality of meat supplied by their present dealer, while 25.5 per cent were guided by convenience of location. Economical prices were mentioned only in the case of the poorer classes. In the foreign groups quality of meat received the greatest number of votes, with convenience next.

Reasons for Dissatisfaction

Retailers should note that 74 per cent of the white American housewives state that they never had stopped trading with a dealer because of dissatisfaction. However, where dissatisfaction had been the guiding factor, more than one-half had stopped because of poor quality of meat. Dishonesty was the



Quality and cleanliness are most important.

THE STORY OF MEAT

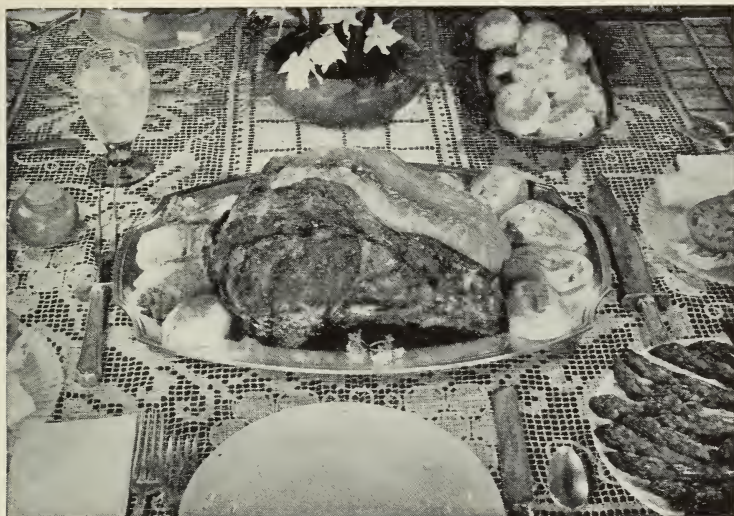
reason given by more of the housewives of the poorer class. Other reasons given were poor service and unsanitary shops. Again retailers should note that in most cases the reasons expressed for dissatisfaction dealt with matters largely under their own control—poor quality of meat, dishonesty, poor service, unsanitary shop conditions, and variety of stock. Quality and sanitary handling were the advertising appeals considered most important; price among the least important.

Emphasis on Sound Merchandising

It is not out of place to call attention again to the important part that honesty, practical knowledge, efficient service, sensible advertising, and quality of products can play in building up a dealer's trade, as against an appeal based solely on price.

Study Questions

1. List some of the factors determining consumer preference in the consumption of meat.
2. To what extent does economic position affect the purchase of meat?
3. Mention any preferences based on nationality with which you are familiar.
4. Why is most kosher meat prepared in the city in which it is consumed?
5. What important contribution can the retail meat dealer make toward influencing consumer purchase of meat?



“Meat Makes the Meal.”

CHAPTER XIV

Meat in the Well-balanced Diet

Furnishes Proteins,
Fat, Minerals, Vitamins

IN recent years there has been an increasing interest on the part of the consuming public in the all-important problem of what constitutes the most adequate human diet. This popular interest is one that can mean much to the meat industry as a whole. The retail dealer, in particular, can be of much help in presenting to the consumer the facts about the value of meat in the diet.

Meat an Essential Part of Diet

It is undeniably true—as a number of important experiments have proved—that normal men are able



Sizzling sirloin steak with buttered asparagus and new potatoes.

to live in our temperate climate for at least one whole year with no other food but meat. Let it be thoroughly understood at the outset, however, that no meat dealer can reasonably attempt to persuade people to adopt a diet of meat only. All he

can hope to do is eliminate some of the incorrect notions which faddists—as well as misinformed, but well-meaning individuals—have accepted as the truth concerning the effects of meat in the diet.

Balanced Diet Necessary

One generalization that we can safely make is that the inclusion in the diet of enough meat, poultry, milk, cheese, butter, eggs, fish, green leafy vegetables, and fruits assures man of an abundant supply of all elements necessary for proper nourishment. It is the absence of sufficient quantities of these basic foods which is responsible for some persons' continual

Lamb sirloin roast with string beans and pears.



search for something to “tone” them up. If such individuals would make sure that their diet included enough of the foods mentioned, and would worry less about

passing food fads and fancies, they would undoubtedly enjoy better health—and save money.

Food Elements

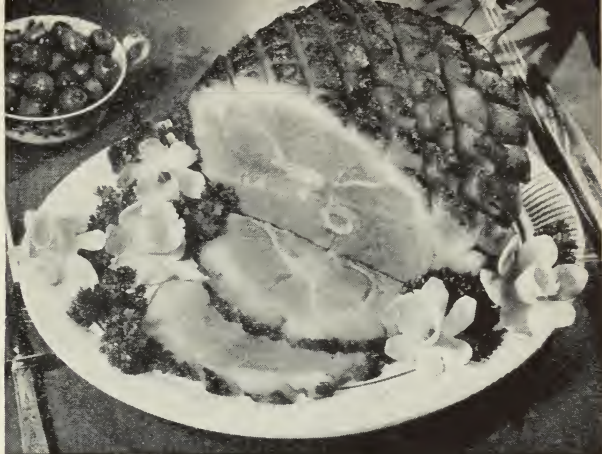
More specifically, an adequate diet must supply: protein, for building and repairing body tissues; carbohydrates and fats, for required heat and energy; mineral elements, for building the bones, teeth, blood, etc., and for regulating the body; vitamins, for promoting growth and protecting health; and bulk, for aiding in the elimination of body waste.

Of the most essential of these food elements, meat has a plentiful supply. It abounds especially in proteins of high quality, energy-yielding fats, important minerals (such as iron and phosphorus), and a number of vitamins (particularly Vitamin G).

The following charts (prepared by the National Live Stock and Meat Board) furnish an interesting comparison of various common foods as sources of the important nutritional elements.

Concentrated Protein in Meat

From the first chart it will be seen that meat is















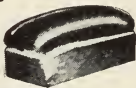







Baked ham with jonquils
made from slices of rutabaga.

Pork cutlets with baked potato
and pineapple slice.



Proteins

		SELECTED SERVING Edible Portion	Quality	RELATIVE AMOUNT of PROTEIN
	LIVER	4oz	★★★★	<div></div>
	VEAL	4oz	★★★★	<div></div>
	LEAN MEAT	4oz	★★★★	<div></div>
	FOWL	4oz	★★★★	<div></div>
	FISH	4oz	★★★★	<div></div>
	LAMB	4oz	★★★★	<div></div>
	PORK	4oz	★★★★	<div></div>
	GLANDULAR MEATS AND HEART	4oz	★★★★	<div></div>
	BEEF	4oz	★★★★	<div></div>
	CHEESE (cottage)	1 1/2oz	★★★★	<div></div>
	BEANS, PEAS, LENTILS (dried)	1oz 1 CUP COOKED	★	<div></div>
	EGGS	1 1/2oz 1 EGG	★★★★	<div></div>
	MILK	7oz 1 GLASS	★★★★	<div></div>
	CHEESE	2/3oz	★★★★	<div></div>
	NUTS	1/2oz	★★	<div></div>
	BREAD	1oz 1 SLICE	★★	<div></div>
	GREENS	3 1/2oz	★★	<div></div>
	CEREALS	3/4oz 1/2 CUP COOKED	★★	<div></div>
	VEGETABLES (fresh)	3 1/2oz	★★	<div></div>
	FRUIT (dried)	1oz	★	<div></div>
	FRUIT (fresh)	3 1/2oz	★	<div></div>






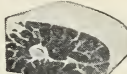


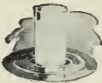
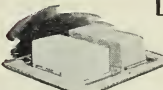








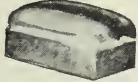


Note

- ★ ★ ★ GOOD QUALITY PROTEIN
 ★ ★ FAIR QUALITY PROTEIN
 ★ POOR QUALITY PROTEIN

COMPARE the
 QUALITY and
 QUANTITY of
 PROTEIN from
 DIFFERENT
 FOODS
 INCLUDE in the
 DIET FOODS RICH
 in GOOD QUALITY
 PROTEIN



Calories

		SELECTED SERVING <small>Edible Portion</small> CALORIES	RELATIVE NUMBER of CALORIES
	PORK	4oz 402	<div></div>
	BEEF	4oz 369	<div></div>
	LAMB	4oz 367	<div></div>
	FOWL	4oz 269	<div></div>
	LEAN MEAT	4oz 210	<div></div>
	VEAL	4oz 186	<div></div>
	LIVER	4oz 177	<div></div>
	FISH <small>(fat)</small>	4oz 177	<div></div>
	MILK <small>(whole)</small>	7oz GLASS 138	<div></div>
	LARD	1/2oz 126	<div></div>
	BUTTER, MARGARINE	1/2oz 107	<div></div>
	BEANS, PEAS, LENTILS <small>(dried)</small>	1oz 103	<div></div>
	NUTS	1/2oz 100	<div></div>
	BANANAS	3 1/2oz 96 <small>1 MEDIUM BANANA</small>	<div></div>
	FRUIT <small>(dried)</small>	1oz 89	<div></div>
	VEGETABLES <small>(fresh)</small>	3 1/2oz 89	<div></div>
	CHEESE	2 1/3oz 89	<div></div>
	CEREALS	3/4oz 78 <small>1/2 CUP COOKED</small>	<div></div>
	BREAD	1oz 76 <small>1 SLICE</small>	<div></div>
	EGGS	1 1/5oz 75 <small>1 EGG</small>	<div></div>
	SUGAR	2 TEASPOONS 1/3oz 40	<div></div>

ENERGY
VALUE of
a SERVING
of SOME
COMMON
FOODS
INCLUDE
in the DIET
FOODS
FURNISHING
FUEL for
ENERGY



Calcium

SELECTED
SERVING
Edible Portion







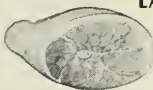
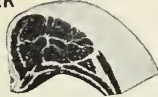











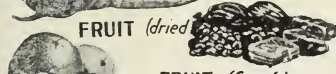

RELATIVE AMOUNT OF CALCIUM



AMOUNT of
CALCIUM
in a SERVING
of SOME
COMMON
FOODS
INCLUDE
in the DIET
FOODS RICH
in CALCIUM



Phosphorus













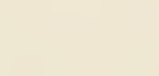
		SELECTED SERVING Edible Portion	RELATIVE AMOUNT of PHOSPHORUS
	LIVER	4 oz	<div></div>
	LEAN MEAT	4 oz	<div></div>
	VEAL	4 oz	<div></div>
	FOWL	4 oz	<div></div>
	FISH	4 oz	<div></div>
	LAMB	4 oz	<div></div>
	PORK	4 oz	<div></div>
	BEEF	4 oz	<div></div>
	GLANDULAR MEATS AND HEART	4 oz	<div></div>
	MILK	7 oz 1 GLASS	<div></div>
	OYSTERS	3½ oz	<div></div>
	CHEESE	¾ oz	<div></div>
	BEANS, PEAS, LENTILS (dried)	1 oz	<div></div>
	EGGS	1½ oz 1 EGG	<div></div>
	OATMEAL	½ + ½ oz ½ CUP COOKED	<div></div>
	VEGETABLES (fresh) (GROUP A & I)	3½ oz	<div></div>
	NUTS	½ oz	<div></div>
	BREAD	1 oz 1 SLICE	<div></div>
	VEGETABLES (fresh) (GROUP B)	3½ oz	<div></div>
	FRUIT (dried)	1 oz	<div></div>
	FRUIT (fresh)	3½ oz	<div></div>

AMOUNT of
PHOSPHORUS
in a SERVING
of SOME
COMMON
FOODS

INCLUDE
in the DIET
FOODS RICH
IN
PHOSPHORUS



Iron and Copper

		SELECTED SERVING <i>Edible Portion</i>	RELATIVE AMOUNT OF IRON
	LIVER (<i>beef</i>)	4oz ★★★	<div></div>
PORK LIVER CONTAINS THREE TIMES THIS QUANTITY, CALF 5 LIVER AND LAMBS LIVER 2/4 AS MUCH			
	HEART	4oz ○	<div></div>
	OYSTERS	3 1/2 oz ★★★	<div></div>
	BEEF	4oz ★	<div></div>
	VEAL	4oz ★	<div></div>
	GREENS	3 1/2 oz ★	<div></div>
	BEANS, PEAS, LENTILS (<i>dried</i>)	1oz ★	<div></div>
	LAMB	4oz ★	<div></div>
	PORK	4oz ★	<div></div>
	FOWL	4oz ★	<div></div>
	EGGS	1 1/4 oz ★ 1 EGG	<div></div>
	MOLASSES	1/2 oz ★★★	<div></div>
	FRUIT (<i>dried</i>)	1oz ★	<div></div>
	VEGETABLES (<i>fresh</i>) GROUP A	3 1/2 oz ★	<div></div>
	FISH	4oz ★	<div></div>
	NUTS	1/2 oz ★	<div></div>
	OATMEAL	1/2 + oz ★ 1/2 CUP COOKED	<div></div>
	FRUIT (<i>fresh</i>)	3 1/2 oz ★	<div></div>
	VEGETABLES (<i>fresh</i>) GROUP B	3 1/2 oz ★	<div></div>
	BREAD	1oz ★ 1 SLICE	<div></div>
	MILK	7 oz ★ 1 GLASS	<div></div>

NOTE

- ★★★ Excellent Source of Copper
- ★ Contains Copper
- Copper content not determined





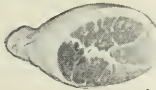
















IRON and
COPPER
IN A
SERVING
of SOME
COMMON
FOODS
INCLUDE
in the DIET
FOODS CON-
TAINING
IRON and
COPPER



Vitamins



Common Foods as Sources of Vitamins

	A	B	C*	D	G
 LIVER	+++to+++	++	+	-to+	+++
 GLANDULAR MEATS AND HEART	+to++	++	+		+++to+++
 BEEF	+	++	-to+		++
 VEAL	-to+	+			++
 PORK	-to+	+++to++	?		++
 LAMB	-to+	+	-to+		++
 OYSTERS	++	++	+	++	++
 COD LIVER OIL	++++	-	-	++++	-
 EGGS	+++	+++to++	-?	++	+++
 MILK	+++	++	-to+	-to+	+++
 BUTTER	+++	-	-	+	-
 OLEO MARGARINE (animal fat only)	+++	-	-	-to+	-
 WHOLE WHEAT BREAD	++	++			++
 APPLES, BANANAS	+to++	+++to++	++		++
 ORANGES, GRAPE FRUIT, LEMONS	+++to++	++	+++		++
 STRING BEANS, PEAS	++	++	+++to+++		-to+
 POTATOES	+	++	++		++
 CARROTS	+++	++	++		++
 LETTUCE	+++to++	++	+++		++
 SPINACH	+++	++	+++	-to+	++
 TOMATOES, CABBAGE	++	++	+++		++

* Vitamin C greatly reduced or destroyed by most methods of cooking.

Note
 + contains vitamin ++ good source
 +++ excellent source ++++ extraordinary source
 - no appreciable amount ? doubtful

THE STORY OF MEAT

the main source—indeed, almost the sole source—of high-quality protein. The outstanding importance of this fact is emphasized by competent medical authorities.

Dr. Harry Gauss, in his book entitled “Critical Dietetics,” states that “Meat is the best source of man’s protein.”



Chicken fried a crisp, golden brown.

Dr. James S. McLester, of the University of Alabama, past president of the American Medical Association, who wrote “Nutrition and Diet in Health and Disease,” is quoted as follows:—

“Protein does more than merely furnish fuel and material for replacements. Through its specific dynamic action it has a stimu-

lating effect upon vigor and general physiologic efficiency.”

Meat protein has superior digestive qualities because it contains certain amino acids of great value to the human body. Meat, especially that obtained from such organs as the liver and the kidneys, is particularly valuable as a blood builder.

MEAT IN THE WELL-BALANCED DIET

Man Adapted to Mixed Diet

When in the first chapter of our story we declared that man's inclusion of meat in his diet was nutritionally correct, we took all these facts into consideration. For man is by nature ideally adapted to a mixed diet of animal and vegetable foods, with meat as the basic constituent. The nature and structure of man's teeth, stomach, and other digestive organs are ample evidence of that.

The small size of the human stomach indicates the need for concentrated foods, of which meat is one of the most important.

Digestibility of Meat

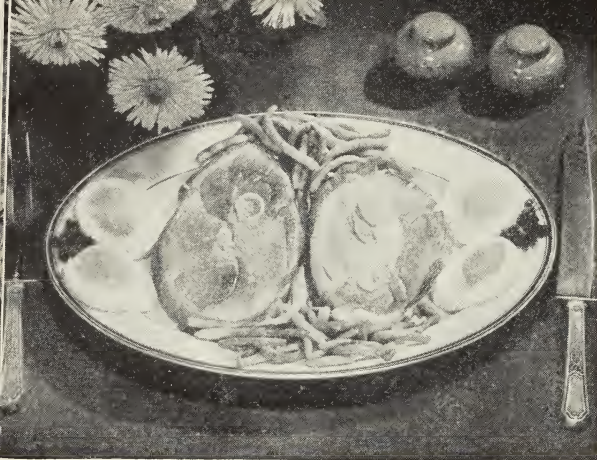
Moreover, meat is a highly digestible food. Its most important constituent, protein, is capable of being almost entirely digested. Its fat content is about 96 per cent digestible. All in all, its digestibility exceeds or equals that of almost all other foods.

Appetizing Quality

Not to be underestimated, too, is the fact that the taste, attractive appearance, and smell of well-prepared meat—its “appetizing” quality—make it espe-



Braised short-ribs with lima beans.



Ham and eggs are also popular.

cially valuable. These factors not only stimulate the appetite, but also stimulate the flow of digestive juices and so materially aid digestion itself.

Meat Needed by Everyone

All that we have said applies to persons of all ages. The growing child needs meat as well as milk, vegetables, and fruits to insure proper health and growth. He, as well as the adult, needs meat to repair body tissues that are constantly being used up, to supply sufficient energy for his many activities, and to maintain general body tone.

It is sometimes supposed that there are wide differences in food requirements for people engaged in different occupations. Careful analysis of the subject has disclosed that this supposition has little foundation in fact. While the office worker, for example, does not seem to be doing strenuous work, yet his need for protein is actually but little less than that of the laborer.

All-year-round Need for Meat

Our need for meat is fairly constant all year around. The particular kind of meat best for each time of the year may vary. In warm weather, we naturally tend to eat fewer heat-producing foods. Therefore, the leaner portions of meat, cold cuts of

MEAT IN THE WELL-BALANCED DIET

ham, sausage, and other prepared meats, are most satisfactory during the summer months. On the other hand, nothing is quite so good as a serving of fat meat for meeting the body's requirements during the colder seasons.

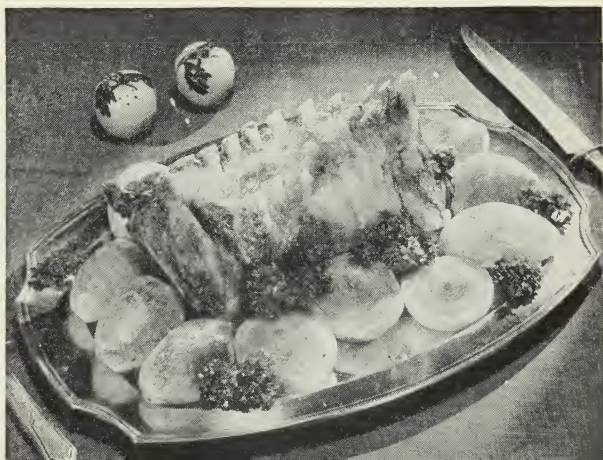
Meat Never Harmful to Normal Person

We must point out here, too, that there is no basis for the opinion sometimes held in the past that meat is a contributing cause of disease. Meat is never harmful to the normal person. Scientific investigation has established the fact that meat can in no way be held responsible for any of the long list of diseases once blamed upon it. Indeed, in a great many cases, meat has become one of the recommended aids in the treatment of those diseases it was formerly thought to cause.

Meat and "Normal Weight"

This applies also to the problem of maintaining the normal weight of the body. The so-called reducing diet may be a restricted diet (and then only on the advice of a physician); but it must at the same time be a well-balanced diet. There cannot be, and must not be, any serious loss of protein if health is to be maintained.

Pork roast with pan-browned potatoes and baked onion slices.



THE STORY OF MEAT

Purposes of Cooking Meat

Now the question arises as to why, in the preparation of meats, some form of cooking is generally found necessary. Of course, cooking is often not necessary in the case of many cured meat products, since some of the desired effects of cooking have already been secured. Fundamentally, cooking is employed to develop the flavor, to improve the appearance, and to soften the connective tissues of meat.

May we repeat that the first two purposes are of ever-increasing importance, for food must not only look good but also taste good if we are to derive the greatest benefit from it.

As mentioned earlier in our story, meat, if improperly handled, may quickly become subject to the attack of microorganisms. Therefore, it is exceedingly important that this highly perishable food be handled with great care. Fortunately, almost all of these organisms are destroyed at cooking temperatures, so that there are practically no harmful organisms which the consumer need fear in properly cooked meat.

The last purpose of cooking meat—softening connective tissue—is one of great importance to the housewife. Relatively little connective tissue yields to dry heat. Hence, where much of this tissue is likely to be in a piece of meat—for example, cuts of neck, shoulder, shank, or lower ribs—cooking by moist heat as in boiling, braising, or stewing, is the method to use. The remaining portions of meat,



In this test kitchen of one of the large meat packing companies, food products are constantly being tested, and new recipes developed.

relatively free from connective tissue, may be quite satisfactorily prepared by using dry heat, and it is from such portions that oven roasts and broiling steaks are obtained.

We cannot hope to present here a detailed study of the methods of cooking meat. The retail dealer is, however, often asked by some customers to describe the preparation of various cuts of meat. He should therefore try to become reasonably familiar with cooking procedures.

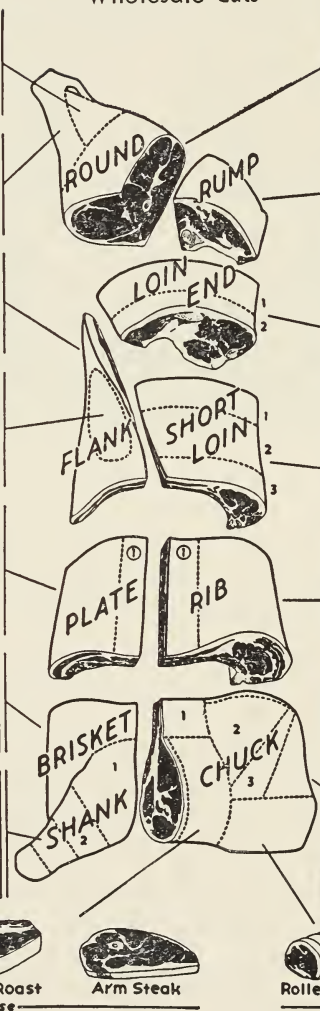
It is imperative for the dealer to know which cuts of meat can be prepared by each of the common cooking methods. The following charts and tables, prepared by the National Live Stock and Meat Board, answer this question.

BEEF CHART

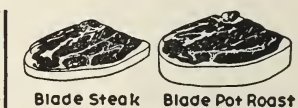
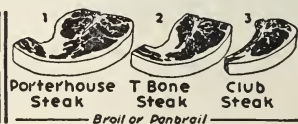
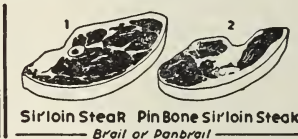
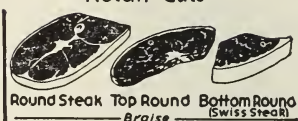
Retail Cuts



Wholesale Cuts



Retail Cuts



How to Cook Them

VEAL CHART

Retail Cuts

Wholesale Cuts

Retail Cuts

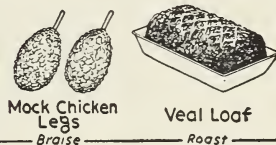
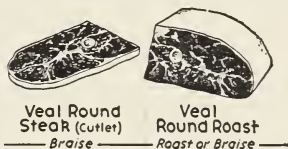
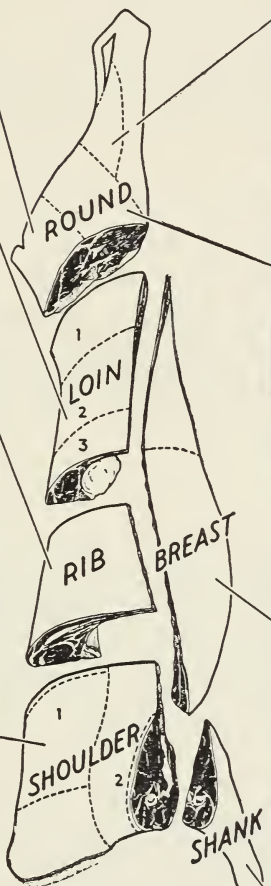
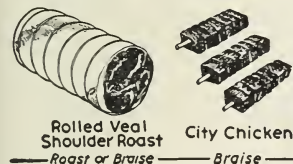
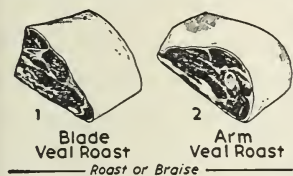
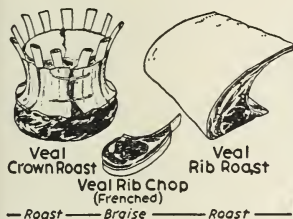
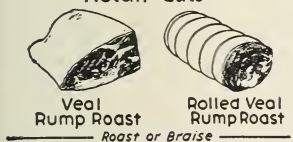


Table 1—Identification

WHOLESALE CUT	DESCRIPTION OF WHOLESALE CUT	RETAIL CUTS
HIND QUARTER Round	Hind leg—large amount of lean in proportion to fat and bone. One of less-tender sections. Cut into steaks. In some markets cut across face of round; in others separated into “top” and “bottom,” named from position when round is on cutting block. When sold as “top” and “bottom” round, the sirloin tip usually is removed before the round is divided into these two sections.	Round steak Top round steak Bottom round steak Sirloin tip Heel of round Hind shank
Rump	Wedge-shaped cut weighing 10-15 pounds and containing about 30 per cent bone. These bones are the aitch or rump bone, tail bone, and the knuckle joint. To facilitate carving, bones are partially or wholly removed. Juicy and tender.	Rolled rump pot-roast Standing rump pot-roast Steaks
Loin End	The portion of the loin, adjacent to and just ahead of the round and rump. Separated from the short loin at the pin bone. Contains portions of backbone and hip bone. Cut into steaks which differ in shape, size, and amount of bone. Sirloin steaks are named from shape of bones. The shape of the bones changes because each steak is cut across a different section of the hip bone.	Wedge-bone sirloin Round-bone sirloin Double-bone sirloin Pin-bone sirloin
Short Loin	The section which lies between loin end and rib; contains half of backbone and 13th rib. There are two muscles characteristic of this section—one large muscle above the T-bone and a small one, the tenderloin, below. The short loin contains most of the tenderloin muscle. Tenderest section of side; lean fine in grain.	Porterhouse (cut from end nearest Loin End) T-bone (name taken from shape of bone) (T-bone and porterhouse used more or less interchangeably) Club or Delmonico

and Use of Beef Cuts

IDENTIFYING CHARACTERISTICS OF RETAIL CUTS	COOKING METHODS
<p>Round or oval in shape with small round bone. One large muscle, three smaller ones. Most tender portion of round. Is one large muscle.</p> <p>Not so tender as top round. Distinguished from top round by having two muscles.</p> <p>Triangular cut; usually contains kneecap.</p> <p>Boneless cut from above hind shank. Weighs 4-6 pounds. Has very little fat and is least tender cut from round. Bony, considerable connective tissue, rich in extractives.</p>	<p>Braise</p> <p>Braise Broil (from high quality beef)</p> <p>Braise (The round is used for Swiss or Spanish steak)</p> <p>Roast, Braise</p> <p>Braise as pot-roast Stew Soup Stew</p>
<p>Boneless roll.</p> <p>Triangular in shape; contain portion of aitch bone and tail bone. Knuckle bone has been removed.</p> <p>Small surface, triangular.</p>	<p>Braise Roast (from high quality beef)</p> <p>Braise Roast (from high quality beef)</p> <p>Braise Broil (from high quality beef)</p>
<p>Largest of sirloin steaks. Some of muscles cut with grain. Contains wedge-shaped bone and part of backbone. Somewhat smaller. More muscles cut across grain. The wedge-shaped bone has changed to a round bone. The two bones which form the double bone lie adjacent to each other. The round bone has changed to the longer of the two. Lies next to the porterhouse. Contains the pin bone which is the forward end of hip bone.</p>	<p>Broil Panbroil (These methods are used for all sirloin steaks)</p>
<p>Large muscle above T-bone; tenderloin muscle is largest in this steak. Large deposit of fat between flank end and tenderloin. Cut across the grain. Somewhat smaller in area than porterhouse. Tenderloin muscle gradually growing smaller.</p> <p>Triangular-shaped; smallest steaks in short loin. Tenderloin has practically disappeared.</p>	<p>Broil Panbroil (These methods are used for all steaks from Short Loin)</p>

Table 1—Continue

WHOLESALE CUT	DESCRIPTION OF WHOLESALE CUT	RETAIL CUTS
Flank	A triangular, thin, practically boneless cut—may contain small end of 13th rib. Coarse in grain. One of less-tender cuts.	Flank steak—only o in a side Stew meat
FORE QUARTER Rib Often called “primeribs.” This is in- correct, as “prime” re- fers to grade.	Consists of 7 ribs, 6th-12th. Tender, juicy. Easily identified by rib bone and large muscle, called the “rib-eye,” which decreases in size from the 12th rib forward. The face of the roast increases in size because the outer, less-tender muscles increase in size and number.	Standing rib roast Blade rib roast Folded rib roast Rolled rib roast Rib steak Short ribs
Chuck	Consists of blade or rib section of 5 ribs, the neck and the shoulder arm. Muscles are small and run in different directions. Juicy and well-flavored. Most tender portion is in rib section nearest the rib cut, i.e., 4th and 5th ribs. Contains rib bones, backbone, neck bone, shoulder blade, and arm bone. This is largest wholesale cut in fore quarter.	Blade roast Blade pot-roast Arm pot-roast Boston cut Blade steak Arm steak Neck
Fore Shank	Considerable bone and connective tissue, varying amounts of lean.	Soup bones Cross-cut shank
Brisket	Portion that lies below the chuck. Layers of fat and lean. Contains rib ends and breast bone. Well-flavored fat and lean.	Fresh brisket Corned brisket
Plate	Portion which lies under the ribs. Contains ends of ribs, layers of lean and fat. Cut across ends of ribs to make short ribs.	Short ribs Plate “boiling” beef Boneless roll

from preceding page

IDENTIFYING CHARACTERISTICS OF RETAIL CUTS	COOKING METHODS
<p>Oval-shaped, boneless steak weighing $\frac{3}{4}$ to $1\frac{1}{2}$ pounds. Muscles run lengthwise; usually scored to shorten muscle fibers. Less-tender cut.</p> <p>Boneless, coarse fibers.</p>	<p>Braise Stuff and braise</p> <p>Stew</p>
<p>Contains usually two or more rib bones. The "rib-eye" is largest in the 1st rib cut which contains the 12th rib numbering from the neck back.</p> <p>Face of roast is larger than 1st rib cut. More and larger muscles, but smaller "rib-eye." Contains portion of shoulder blade cartilage.</p> <p>Ribs are sawed through, folded down over the large muscle, and tied in shape.</p> <p>Bones are removed and the thin portion rolled around "rib-eye" and tied securely.</p> <p>Contains "rib-eye" and may contain rib bone.</p> <p>Cut from ends of ribs, layers of lean and fat.</p>	<p>Roast</p> <p>Roast</p> <p>Roast</p> <p>Roast</p> <p>Broil, Panbroil Braise, Roast</p>
<p>Contains 4th and 5th rib; portion of blade bone is thin strip separating the muscles.</p> <p>Same as above. In pot-roasts nearer neck blade bone is shaped like the figure seven due to a ridge running along outer surface.</p> <p>Has a round bone and 3-5 rib ends. A small round muscle near the round bone is surrounded by connective tissue.</p> <p>A rectangular piece cut across 2 or 3 chuck ribs.</p> <p>Contains part of shoulder blade; may have rib.</p> <p>Round bone and ends of ribs. Cut thick for Swiss steak.</p> <p>Contains vertebrae.</p>	<p>Roast (from high quality beef) Braise</p> <p>Braise</p> <p>Braise Braise Braise Stew</p>
<p>Contain shank bone and knuckle.</p> <p>Small pieces cut across shank bone.</p>	<p>Soup Stew Braise</p>
<p>Layers of lean and fat. Presence of breast bone sure indication that cut is from brisket.</p> <p>Usually boned before corning.</p>	<p>Cook in water Braise Cook in water</p>
<p>Contains rib ends, layers of fat, and lean.</p> <p>Cut across plate between ribs.</p> <p>Absence of "rib-eye" distinguishes this cut from rolled rib.</p>	<p>Braise, Stew Cook in water Cook in water</p>

Table 2—Identification

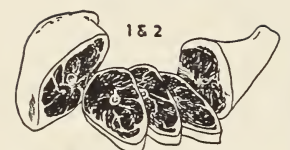
WHOLESALE CUT	DESCRIPTION OF WHOLESALE CUT	RETAIL CUTS
Round or leg	Corresponds to beef round, rump, and shank. Large percentage of lean meat in proportion to bone. Veal round is divided into retail cuts in much the same way as beef round, and so the cuts are similar in shape, bone, and muscle structure. Legs from small carcass may be sold as whole or half legs.	Leg roast—whole or half from small carcass Veal round roast Veal round steak or cutlet Heel of veal round Shank Veal rump roast Boneless rump roast
Loin	Corresponds to loin end and short loin of beef. Contains kidney which may be cut with roast or chops. Usually cut into steaks and chops, but may be used as roast. Contains part of the hip bone, 13th rib, and lumbar and sacral vertebrae.	Sirloin veal steak Loin chops Kidney chops Loin roast
Breast	Corresponds to brisket, plate, and flank of beef. Long, flat cut containing breast bone and rib ends. Flank end, boneless.	Pocket roast Veal riblets
Rib	Corresponds to rib of beef. Contains 7 ribs, back-bone, and the "eye" muscle. Tender, juicy.	Rib chops Rib roast Crown roast
Shoulder	Corresponds to beef chuck. Contains 5 ribs, back-bone, the blade, and the arm bones. Tender, juicy meat. Often boned and rolled for roasts.	Blade steak Arm steak Blade roast Arm roast Rolled shoulder
Shank	Contains considerable bone and connective tissue. Varying amounts of lean. Rich in gelatin-forming substance.	Soup bone

and Use of Veal Cuts

IDENTIFYING CHARACTERISTICS OF RETAIL CUTS	COOKING METHODS
<p>Whole leg—see description of wholesale cut; half leg will consist of either rump or shank section.</p> <p>Any desired size. Contains small round leg bone.</p> <p>Has the same muscle structure and oval shape of a beef round steak; has small round bone.</p> <p>Wedge-shaped boneless piece—same as in beef.</p> <p>Considerable bone and connective tissue.</p> <p>Contains aitch or rump bone, and usually knuckle bone.</p> <p>Roll weighing $3\frac{1}{2}$-$4\frac{1}{2}$ pounds.</p>	<p>Roast, Braise</p> <p>Roast, Braise</p> <p>Braise</p> <p>Braise</p> <p>Broth</p> <p>Roast, Braise</p> <p>Roast, Braise</p>
<p>Corresponds to sirloin beef steak.</p> <p>Correspond to porterhouse and T-bone steaks, with one large muscle and the tenderloin.</p> <p>Loin chops cut with kidney from rib end of loin; flank is wrapped around.</p> <p>Usually cut to contain kidney. Will contain backbone and the large muscle with tenderloin beneath.</p>	<p>Braise</p> <p>Braise</p> <p>Braise</p> <p>Roast</p>
<p>Flank end removed. Pocket cut in from side or flank end for stuffing. Contains rib ends and breast bone. Resembles beef brisket in shape.</p> <p>Breast bone and flank removed and breast separated into riblets by cutting between the ribs.</p>	<p>Roast, Braise</p> <p>Stew Braise</p>
<p>Contain rib bone and "eye." Chops cut between ribs do not have rib bone.</p> <p>Similar to standing rib of beef.</p> <p>Shaped like a crown—rib ends "Frenched."</p>	<p>Braise</p> <p>Roast Roast</p>
<p>Contains part of shoulder blade; may have rib.</p> <p>Contains round bone and ends of ribs.</p> <p>Resembles blade steak, cut thick.</p> <p>Resembles arm steak, cut thick.</p> <p>Boneless roll.</p>	<p>Braise Braise Roast, Braise Roast, Braise Roast, Braise</p>
<p>Contains shank bone and knuckle.</p>	<p>Soup Jellied veal</p>

LAMB CHART

Retail Cuts



Leg of Lamb
(Three cuts from one leg)

—Roast—Broil—Stew, Braise—



Lamb Crown

Roast



Rib Lamb Chops



Frenched

Broil



Square Cut
Lamb
Shoulder

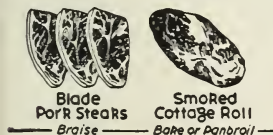
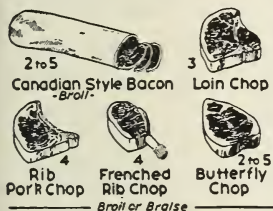
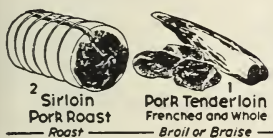


Arm
Lamb Chop

How to Cook Them

PORK CHART

Retail Cuts



Wholesale Cuts



Seasoning - Panbroil

Retail Cuts

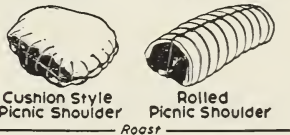
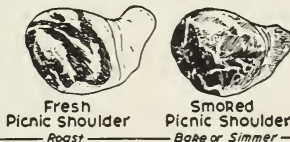
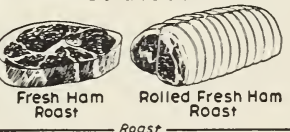
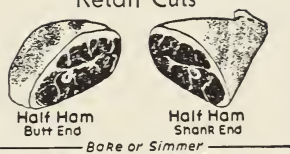


Table 3—Identification

WHOLESALE CUT	DESCRIPTION OF WHOLESALE CUT	RETAIL CUTS
HIND SADDLE Leg	Corresponds to round, rump, and hind shank of beef. Has large proportion of lean meat. Is economical. Tender, juicy. The leg may include the loin end to increase the size, or it may be cut short by removing the sirloin end—this being cut into chops or boned out for a small roast.	French style leg American style leg Sirloin roast Leg steaks Sirloin chops
Loin	Corresponds to short loin of beef. The loin is split along the backbone. Each side contains half of the T-shaped vertebra bones, and the 13th rib. Meat is high in quality with very little waste.	Loin chops Kidney chop English chop Loin roast
FORE SADDLE Rack	Sometimes the term rack is used to mean whole fore saddle, and rib section is known as hotel rack. Contains 9 pairs of ribs. Split in center and cut into rib chops. Tender, juicy meat.	French lamb chops Rib chops Crown roast
Shoulder	Corresponds to chuck of beef. Contains 3 pairs of ribs, backbone, shoulder blade, and arm bone. Muscles run in several different directions. Meat is tender, juicy, and well-flavored. Often boned and rolled or boned and left flat for dressing; or cut into shoulder chops from rib side and arm side. Shoulder may include shank and brisket end of breast.	Shoulder chops Square cut shoulder Rolled shoulder Cushion shoulder Mock duck Neck slices
Breast	Corresponds to plate, brisket, and shank of beef. Contains the ends of 12 pairs of ribs and the shank bones and breast bone. There are two breasts cut from each carcass. Narrow thin strip of meat, may be boned and rolled.	Rolled breast Pocket roast Lamb riblets

and Use of Lamb Cuts

IDENTIFYING CHARACTERISTICS OF RETAIL CUTS	COOKING METHODS
<p>Shank bone is "Frenched," that is, meat is removed from end of bone. Has leg, shank, aitch, and hip bones.</p> <p>Meat is peeled back, shank bone is removed and shank meat tucked back under fell and pinned in place.</p> <p>Sirloin end is removed before legs are divided; is boned and tied.</p> <p>Round cut with small round bone.</p> <p>Correspond to sirloin beef steaks.</p>	<p>Roast</p> <p>Roast</p> <p>Roast</p> <p>Broil, Panbroil</p> <p>Broil, Panbroil</p>
<p>Contain T-shaped bones; correspond to porterhouse, T-bone, and club steaks.</p> <p>Kidney cut with chop.</p> <p>Cut across the undivided loin. Backbone removed and chop skewered into shape.</p> <p>Contains backbone and usually the kidney.</p>	<p>Broil, Panbroil</p> <p>Broil, Panbroil</p> <p>Broil, Panbroil</p> <p>Roast</p>
<p>The meat has been removed from the end of bone. Contain eye muscle.</p> <p>Same as above except have not been "Frenched."</p> <p>Rib ends are "Frenched" and the ribs shaped and fastened into a "crown."</p>	<p>Broil, Panbroil</p> <p>Broil, Panbroil</p> <p>Roast</p>
<p>If cut from rib side, contain rib bone and portion of blade bone. If cut from arm side, contain small round bone and rib ends.</p> <p>Square, flat piece with two faces corresponding to arm and blade chops; neck removed.</p> <p>Boneless roll.</p> <p>Boned and left flat. Sewed on two sides. One may be left open for dressing; then skewered or sewed.</p> <p>Blade and arm bones removed but shank bones left in. Shaped like a duck.</p> <p>Round slice with neck vertebra in center.</p>	<p>Broil, Panbroil</p> <p>Roast</p> <p>Roast</p> <p>Roast</p> <p>Braise</p>
<p>Alternate layers of lean and fat.</p> <p>Pocket between ribs and lean, opening along side or at flank end.</p> <p>Breast bone and flank removed and breast cut between ribs. Each small piece contains the end of a rib bone.</p>	<p>Braise</p> <p>Braise, Roast</p> <p>Stew</p>

Table 4—Identification

WHOLESALE CUT	DESCRIPTION OF WHOLESALE CUT	RETAIL CUTS
FRESH PORK Ham	Corresponds to hind shank, round, and rump of beef, with tail bone, or sacral and caudal vertebrae removed. The muscles are tender and juicy and there is a layer of fat over the outside just under the skin. Large proportion of lean to fat and bone.	Fresh ham roast Fresh ham butt Center cut roast Rolled ham roast Fresh ham shank Center cut steaks
Loin	Corresponds to rib, short loin, and loin end of beef. Fat covering. Contains backbone, upper portion of ribs, hip bone, and portion of blade bone. Extends from shoulder to ham. The "eye" muscle extends full length. The portion of the loin which corresponds to full loin of beef contains the tenderloin muscle. Tenderloin sometimes stripped out and sold separately. Tender, juicy, and well-flavored.	Center cut loin roast Ham end loin roast Shoulder end loin roast Loin pork chops Rib chops Tenderloin
Spareribs	Ends of the ribs which have been removed from the bacon strip. Very little lean meat and it is between the bones.	Spareribs
Shoulder Butt	Section of pork shoulder which compares to backbone and neck sections of beef chuck. Contains part of blade bone.	Boston butt Boneless butt Blade steaks
Picnic Shoulder	The lower portion of the shoulder and includes the fore leg down to a little above the knee joint. Contains arm, knuckle, and shank bones. The hock may be cut off and the bones removed and picnic shoulder made into a roll or cushion roast.	Fresh picnic roast Arm steaks Cushion style picnic Rolled picnic Hock
Feet	Little meat, considerable bone. Delicate flavor.	Pig's feet
SMOKED PORK Ham	Fresh ham which has been cured and smoked. Comes to market as regular ham with the skin on, or skinned ham.	Whole ham Half ham Ham slice
Loin	Tenderloin and bones removed; loin strip, cured and smoked. Sold as Canadian style bacon.	Canadian style bacon Sliced
Bacon	Comes from section corresponding to flank and plate of beef. Spareribs are removed, leaving boneless piece, the bacon strip. It is trimmed, squared, sugar-cured, and smoked.	Breakfast bacon Sliced bacon
Cottage Roll	Eye muscle of fresh Boston butt; cured and smoked.	Cottage roll
Picnic Shoulder	See description of fresh picnic.	Smoked picnic

and Use of Pork Cuts

IDENTIFYING CHARACTERISTICS OF RETAIL CUTS	COOKING METHODS
<p>Rather heavy layer of fat under skin (skin or rind may be removed). Lean is grayish white. Adjacent to loin. Contains aitch bone and part of leg bone. Face is oval. Small round bone. Boneless roll. Wedge-shaped piece. Contains shank bones. Oval shape with small round bone.</p>	<p>Roast</p> <p>Roast Roast Roast Roast, Cook in water Braise</p>
<p>Eye muscle and portion of tenderloin. Contains backbone and may contain ribs. Layer of fat over outside. Contains "eye" muscle and portion of the tenderloin. Bones are the hip bone and backbone. Contains portion of blade bone, ribs, and backbone. No tenderloin muscle. Have both "eye" muscle and tenderloin and T-shaped bone. Only the "eye" muscle. There will be a rib bone in each chop if cut thick; cut thin, every other chop will have no rib bone. Long, tapering round muscle, weighs about $\frac{1}{2}$-$\frac{3}{4}$ pound.</p>	<p>Roast</p> <p>Roast</p> <p>Roast</p> <p>Braise Braise</p> <p>Braise, Roast</p>
<p>Ends or rib bones and small amount of lean.</p>	<p>Roast, Braise Cook in water</p>
<p>Made by trimming fat from shoulder butt. Contains blade bone. Muscles run in both directions. Made by boning Boston butt. Cut from Boston butt. Contain section of blade bone.</p>	<p>Roast</p> <p>Roast Braise</p>
<p>Contains arm bone. Looks like a small fresh ham. Oval at one end and squared off at other. Small round bone.</p> <p>Square, boneless roast sewed around. Boned and rolled. Wedge-shaped piece. Contains portion of fore shank bones. Easily recognized by shape.</p>	<p>Roast Braise</p> <p>Roast Roast Cook in water</p> <p>Cook in water</p>
<p>Characteristic shape. Mahogany brown exterior. Characteristic pink color of lean, round bone. White fat. Oval-shaped slice with small round bone.</p>	<p>Bake (roast) Bake Broil, Panbroil, Braise</p>
<p>Boneless strip. Lean is light pink. Exterior is brown color. Slice cut thin. Is "eye" of loin.</p>	<p>Roast (in piece) Broil, Panbroil (in slice)</p>
<p>Thin, oblong slab; mahogany color; fat side covered with rind.</p> <p>Thin long slice, streaked with lean and fat.</p>	<p>Broil, Panbroil</p>
<p>Boneless roll, weighing 3 to 5 pounds.</p>	<p>Bake</p>
<p>Same as fresh picnic except for characteristics due to smoking.</p>	<p>Bake</p>

THE STORY OF MEAT

Study Questions

1. Why is it inadvisable to exclude meat from the human diet?
2. Is meat a necessary part of the diet of children? Of office workers? Why?
3. What food elements are found in meat? Which of these forms the greatest part?
4. What are the purposes of cooking meat? When isn't cooking necessary?
5. Describe a few methods of cooking meat. What cuts of meat would you recommend for each of those methods?

CHAPTER XV

Vocational Opportunities

Meat Industry Offers Jobs
of Many Different Types

THE meat industry is like a complex machine. It requires a great many persons of varied levels and kinds of ability, who, like the gears and other parts of a machine, make it run smoothly and properly.

Many Opportunities in Meat Packing Industry

There are now approximately 1,160 meat packing plants in this country, and they employ more than 152,000 workers. So highly specialized have the operations in the handling of meat become that the plant's functions alone often call for as many as 270 types of jobs. Add to this the large number of live-stock buyers, foremen, salesmen, clerical and office workers, managers and executives, and some idea of the vocational possibilities of this part of the industry may be obtained.

We mention this section of the industry here for, though this book is dedicated to the young man and woman about to enter the retail trade, we feel that no opportunity should or will be closed to them.

In Plant Itself

In the production end of the average meat packing plant, about one-third of the labor performed is rela-



Converting sides of beef into cuts desired by retail dealers.

tively unskilled; another third might be considered semi-skilled; and the remaining third consists of a great variety of operations requiring a high degree of skill. It is apparent that for a person properly trained, both from the theoretical and practical points of view, the opportunities for employment and for advancement are numerous.

In Livestock Market

For example, those young men whose experience or education has equipped them with a thorough knowledge of the kinds of meat animals that are the raw material of the meat packing industry, may

VOCATIONAL OPPORTUNITIES

eventually succeed in obtaining the valuable position of livestock buyer. At the very least they can begin as drivers or scalers at one of the central livestock markets. Here they can observe the methods and customs of seasoned buyers, and this experience aided by their previous training can in time make them sufficiently expert to become buyers.

It can readily be seen that for any young man desiring to make a career for himself in the industry, practical experience in the operating end of the business is necessary in addition to other types of training. This is true whether he wishes to become an inspector, a salesman, a foreman, or a manager. Actual manual labor in a packing plant is the best kind of practical experience to give a young man a thorough understanding of the product and an adequate background. The present executive staff of one large packing company—Swift & Company—is a good illustration. Eighty per cent of these executives have risen from the ranks of messenger boys, laborers, or clerks; and 15 per cent began in only slightly higher positions.

Livestock buyers for a meat packing company inspecting a load of lambs.





The field of salesmanship is always open to bright, aggressive men who can "sell" themselves as well as a company and its products.

Foreman

The job of foreman, as well as any other production job, requires a man who takes real pleasure in seeing crude raw materials turned into valuable finished products. There are so many physical discomforts in this phase of the work, that only a young man who is thoroughly interested in work of this kind can succeed in it.

Salesman

The young man whose knowledge of meat and meat products is expert, who is able to mingle readily with people, and can discuss classes, grades, and merchandising problems effectively, will find many excellent opportunities open to him, not least of which is the job of salesman.

Competition among the many meat packing companies, however, is so keen that they will employ

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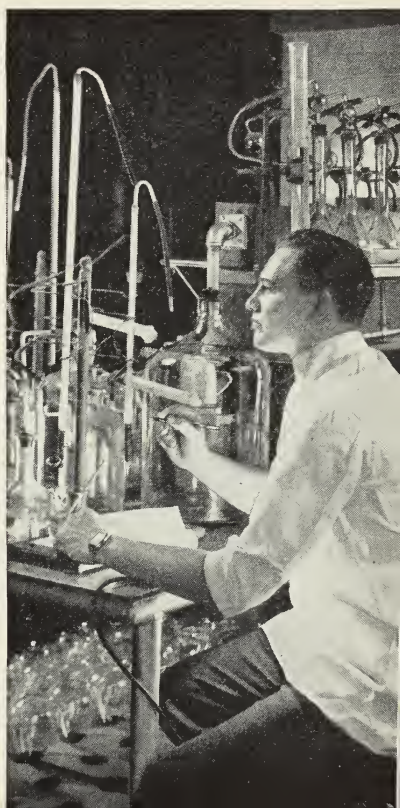
only very competent salesmen. Such salesmen are needed for sales routes from the various plants and branch houses, where the major contact is with the retail dealer.

The larger meat packing companies also have sales departments for every major class of by-product. The men employed here must have a highly specialized knowledge of their line and the ability to deal with the experienced buyers of large corporations who use such products. This work is important and well rewarded.

Inspectors and Graders

A good many plants have inspectors and graders of their own, even where there is government inspection. This job requires thorough training. Federal inspectors, as we have pointed out in a previous chapter, must pass a rigid civil service examination, and serve for three years as assistants to experienced men before they work independently. When appointed they are assured of good pay, job security, liberal vacations with pay, the opportunity to rise in the government service, disability insurance, and retirement pensions.

Chemistry has become increasingly important in the attempt to find new processes, new uses for products, and even new products.





The desire of consumers that their bacon be uniformly sliced and neatly wrapped has provided work for a large number of operators. The work is done in bright, air-conditioned rooms.

Employment in Large Companies

The large companies themselves offer many advantages to their employees. Several of them have centralized employment offices which handle all employments, layoffs, and discharges. This makes possible a system of transfers whereby employees who would ordinarily have to be laid off during seasons of low production in their departments may be transferred to other departments. The great majority of workers are thus assured fairly steady employment throughout the year. Those employed for a period of time on an hourly basis are guaranteed in some plants at least 32 hours of work a week.

In some cases, employees have organizations which take up their grievances. They also recommend changes in working conditions, whenever they consider such changes desirable, and are consulted upon similar changes proposed by the management.

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Very often mutual benefit associations exist. Through them protection is provided against financial hardship, resulting from accidents while on or off duty, disability, or death. Low cost group life insurance may also be open to all employees.

Several of the larger companies also have extensive training programs for their employees to prepare them for better positions in their organizations.

Medical care, clubs, camps, pensions of various kinds are among the other attractive features of work in some packing plants.

Retail Trade Offers Opportunities

The prospect of quickly finding placement in a retail meat store, or possibly of opening a store of his own, is no doubt most enticing to the average boy who seeks training in this field. He realizes, correctly, that failure in the retail business is very often due to sheer lack of knowledge and skill. He knows that careful planning, study, and practical training will enable him to master all aspects of the trade, and that opportunities must inevitably arise.

Thorough Training Necessary for Success

The steps that such a boy, or young man, must take in preparing himself for successful work are clear. A thorough knowledge of what lies behind the finished product that arrives in the retail store, of all of the operations that are involved in the transformation of live animals into cuts ready for delivery and into many by-products, will prove very helpful. Famil-



A business-like, pleasant personality is important.

ilarity with the history of the industry will make him realize that, as there have been a great many changes before, he must be progressive-minded enough to accept and apply new developments in the future.

Above all, he must know every detail that goes into the successful operation of his own section of the industry—the retail meat store.

Understanding of classes and grades of meat, inspection, meat preservation, the determination of the prices of carcasses and cuts, national and racial meat preferences, the value of meat in the diet, and even the preparation of meat, should all be part of his equipment.

Expertness is needed in buying, salesmanship, advertising and display, the handling of equipment and tools, and store layout and management.

Sources of Information

Some of these matters have been dealt with at length in this book. Others must of necessity be learned more thoroughly in the classroom, the school shop, and within the industry itself. Educational opportunities and information are available through other sources as well.

American Meat Institute

Meat packing plant owners, although highly competitive with one another, have learned the advan-

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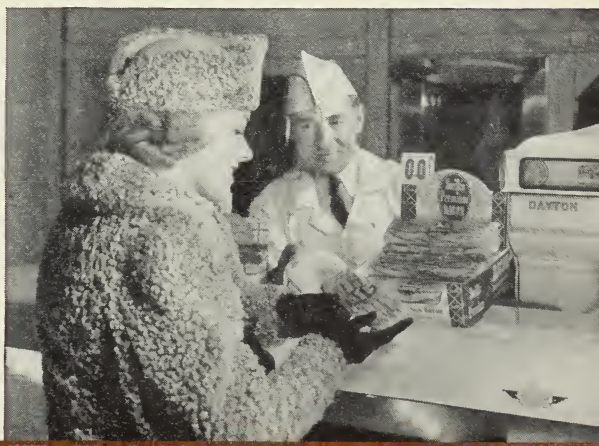
tages of cooperation within the industry, and the American Meat Institute, organized in September, 1919, is the result. Basically, the Institute is founded on the need for working together—meat packer with livestock man, meat packer with the public, meat packer with the scientist, meat packer with the foreign market, and, by no means least, meat packer with retailer and with other meat packers. It aids the industry in the improvement of products, practices, and methods; conducts research on operating problems and on the value and use of meat products; corrects misinformation about the meat packing industry, and promotes meat in every way possible.

The Institute has more than thirty standing special committees and nine staff departments. The results of investigations and research work carried on by these committees and the various staff departments are presented to member companies and to other interested parties.

National Live Stock and Meat Board

The National Live Stock and Meat Board is entirely an educational institution, representing livestock producers, meat packers, and retail dealers. Its purpose is to bring about a greater appreciation of the true value of meat in the diet and its relation to health,

Make every sale a pleasure.



THE STORY OF MEAT



Alexander T. Nelson, instructor in the meat market of the New York Food Trades Vocational High School, giving a group of students tips on how to make a showcase look attractive.

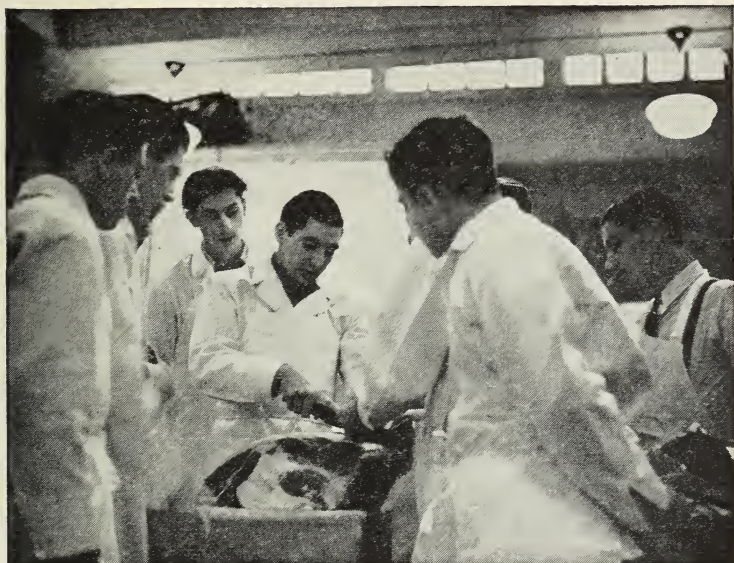
to counteract and eliminate misrepresentations and misstatements of facts, and to encourage research and study in the field of nutrition.

Another most important source of information which the student should not neglect is the published material of the U. S. Department of Agriculture, particularly its Bureau of Animal Industry and its Bureau of Agricultural Economics. Their bulletins, circulars, and miscellaneous publications cover many aspects of the meat trade with statistical accuracy.

Schools Furnish Direct Training

In the so-called "Institute Plan," there are plans laid, and now partly realized, for broad and at the

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Another group of students learning the art of meat cutting. This public high school is devoted entirely to the food trades, stressing actual practice as well as theory.

same time specialized education of collegiate grade for young men in the industry. Courses are outlined for further study for positions as intermediate executives and assistant managers, as well as junior employees, and even office hands.

This is one method that the industry has of finding out exactly where it can gather its best young minds, who will be able, with training, to take their places in the ever-increasing group of men specializing in the various branches of the industry.

As an indication of the direct educational opportunities that exist for young men at the present time,

THE STORY OF MEAT

continuation schools have received immeasurable aid from local Meat Councils in setting up courses in meat cutting and merchandising, and in the training of young people—men and women—for the opportunities the meat packing industry offers.

In New York City, for example, the entire industry, and unions in the field, have cooperated with the local Board of Education in establishing the first public school of its kind in the country, the Food Trades Vocational High School. In its curriculum is a complete four-year course, preparing students for efficient work in the meat trade. The most elaborate modern equipment has been donated to the school as a testimony of the value that industry and labor place upon proper training.

Study Questions

1. Approximately how many meat packing plants are there in the United States?
2. How many different operations are there in the handling of meat in a modern meat packing plant?
3. What proportion of meat packing labor is performed by unskilled workmen? By semi-skilled employees?
4. What are some of the qualifications needed for the more important positions in a packing company?
5. List the important qualifications needed by a meat packing company salesman.

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6. List as many things as you can think of that a young man must learn to become a successful retail meat dealer.

7. Where can information about some of these things be obtained?

8. What educational opportunities are open to those interested in advancing in the meat industry?

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